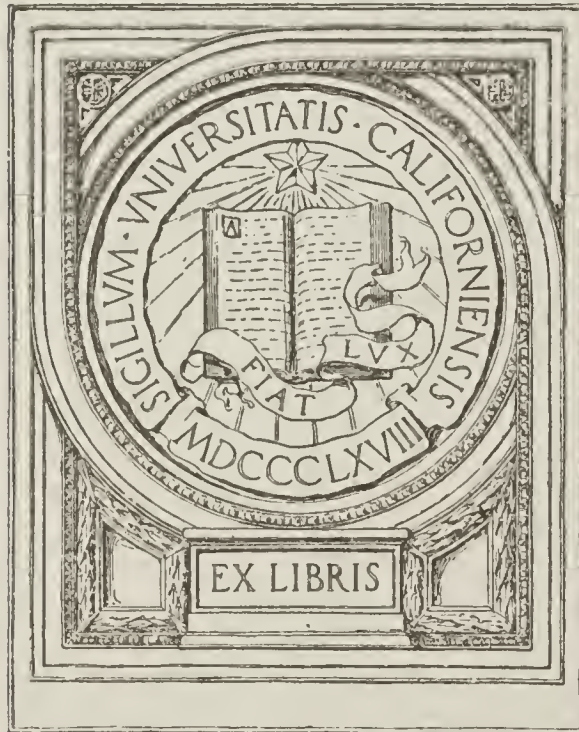
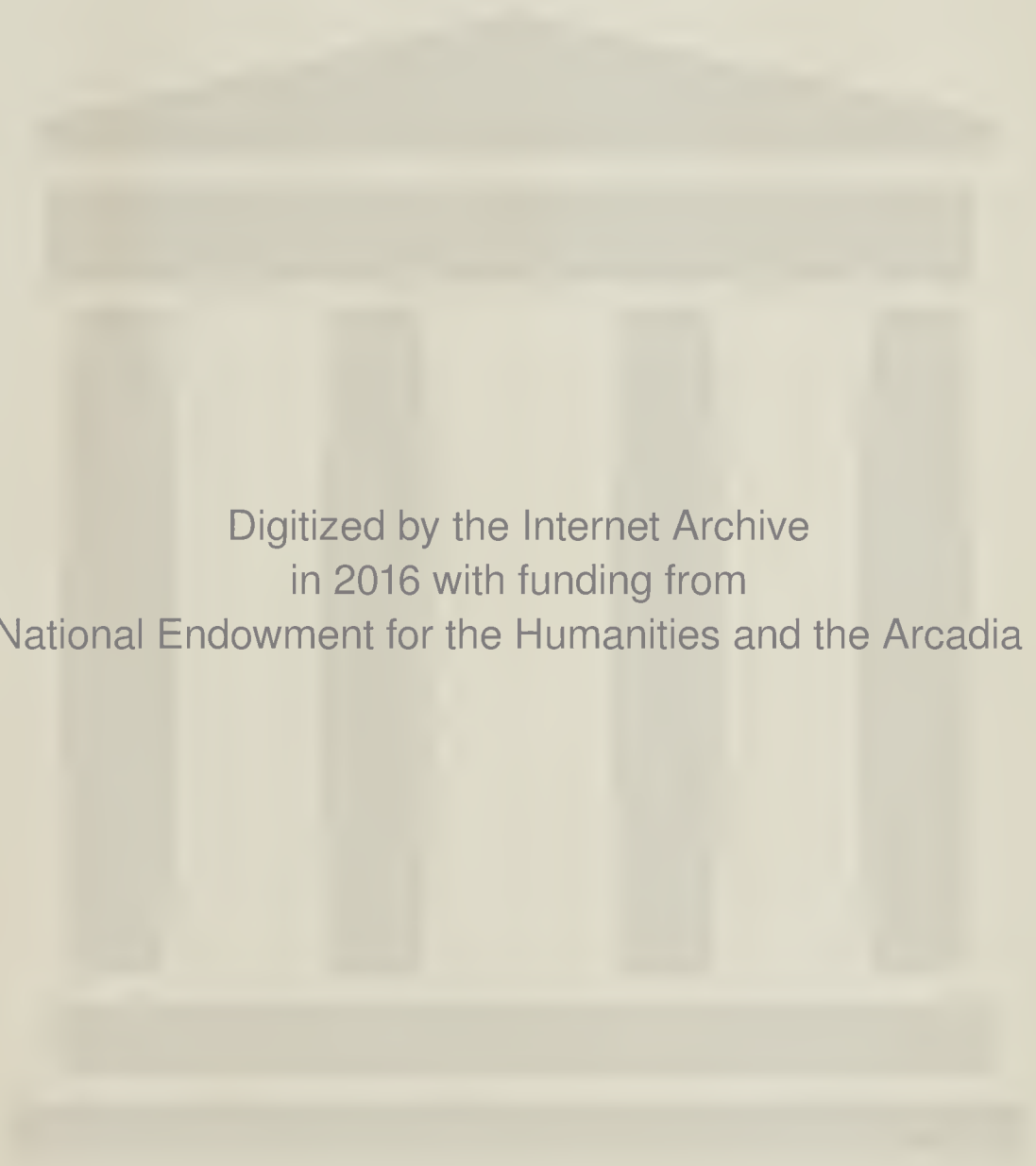


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THE PRESIDENT'S ADDRESS TO THE NEBRASKA STATE MEDICAL ASS'N.

E. W. ROWE, M. D., Lincoln.

It has been the custom for your presiding officer to appear before the Association with a message. I desire to give a report of my stewardship and, so far as I am able, to review some of the tendencies in the progress of medicine which are affecting the profession in Nebraska.

Not only is it proper to reverence the past, but the history of medicine has many lessons for us to learn. As in other fields of human endeavor, the scholar in medicine has been adding year by year his little addition to the sum total of knowledge. Since the upward path of history began to unroll, names of immortal thinkers have slowly accumulated. Hippocrates established the profession on a firm foundation. He took it out of religion and mysticism, out of the hands of mercenary craftsmen. He gave it sane reason. He characterized it by a high conception of its duties; with singular skill he used the few means at hand. Disease to him was a life process governed by natural laws, visible if one would observe. This gave to modern medicine its pillar of support—clinical observation. Hippocrates is the contribution of Greece to medical thought. Aristotle, though not a physician, is her next great addition. His scientific research in anatomy and physiology gave the Hippocratic school worthy support. Roman civilization borrowed art, poetry and song, so she borrowed Asclepiades and Galen. And that versatile, biased historian, Pliny, recorded in literature all the medical thought of the day. Step by step, from the Alexandrian school to Arabian medicine, from the school of Salerno to the scholastic period, from the period of the revival of learning to Paracelsus and chemical medicine, there is a record of achievement which serves only to show how long the mind may grope before the truth is known. After Harvey discovered the circulation of the blood in the sixteenth century, Leeuwenhoek the microscope and Newton his laws, progress came rapidly. In the next century, in Italy, in France, in

Germany and England were many keen clinical observers who made use of the new discoveries in biology.

The character of modern medicine cannot be summed up in any one word. Empiricism is passing. Medicine is today boldly speculative. We stand in an experimental age. Nothing that cannot be proven is acceptable. Facts have been harvested from Harvey, Lavoisier, Liebig, Helmholtz, Darwin, Pasteur, and Lister. The influence of the laboratory and the birth of bacteriology and a new pathology is more readily comprehended when we recall the labors of Virchow, Jenner, Koch, Pasteur, Ehrlich, Emil Fischer and Metchnikoff. Through them the whole conception of disease has changed. Building up of resistance and immunity require more than Galenic tonic. Medicine stands today firmly resting in the laboratory. Though it may lack something of the exact sciences, spiritualism, mysticism, speculation and dogmatism have forever gone.

The work of the physician has been individual. He has attacked the field of disease over the wide area of distribution. People call him whom they will. Recompense is from the one who is served. Science should go to the roots of the evil. She should know no master, and the pay should be from the common treasury. The modern world is just awakening to a new thought in political development. The real destroyers of Greece and Rome were not the Goths and Huns and Vandals. Civilization, settling—as a gypsy his camp—around the Mediterranean in Mesopotamia and Asia Minor, again and again was forced to move on. The Pharos were driven from the Nile by disease. Her cities were built without sanitation. Victorious armies in all parts of the world brought home to them diseases. Moses, wise beyond his age, taught the children of Israel during the forty years they wandered in the wilderness a system of living that still holds them together, though all these years they have been a people

without a home. It is the science of Preventive Medicine as applied to Public Health that is the new thought of the century. Never before have cities or nations attempted to clean their waste or prevent disease from entering their domains.

Inherent in our democratic form of government is a fatal tendency toward inefficiency. With personal-liberty tendencies we are led away from efficiency and force, where concerted, strong movement is necessary. What made it possible to create in the Panama Zone model cities and homes to live in? The government placed back of the Public Health Service the strong hand of the army. Where a health officer went, a soldier went also; where a health ordinance went, martial authority followed. There was no useless delay in civil courts, with hopeless juries and neutral judges. Tuberculosis or any other infectious disease can be banished from the land the same as bubonic plague, as malaria or yellow fever have from the Canal Zone. Give the proper treatment, funds and authority, and the United States can be cleaned up as thoroughly as the cities in the tropics where American industry has been crowding.

To non-governmental agencies has been left the vain task of fighting pellagra, tuberculosis, hook worm, and other infectious diseases. Philanthropy has not the funds nor the authority to do this work. It can only show by example, by education and by suggestion how it may be done. The spread of syphilis and gonorrhoea, our social diseases, has been unchecked since they began their devastation. The laws of heredity as applied to insanity, to feeble-mindedness, to epilepsy and to criminology are modern problems for our nation to solve if she wishes to avoid the pitfalls of ancient civilization.

The rapid rise of medical education in the United States is remarkable as well as inspiring. With science, art and literature advancing so rapidly, medical education could not resist the dynamic impulse behind it. Ten years ago our medical schools were looked upon askance by the European fraternity. Fifty per cent of our pilgrims to foreign clinics were viewed as phenomenal wonders of unsophistication. The United States had 166 medical colleges—one-half the number in existence. Today there are 95. There were then 28,142 students, as compared with 14,891 now; then 5,600 graduated; 3,536 today. The ideal standards for the Class A schools are today the essentials for 88 per cent of the schools in our land. In the past five years twenty medical colleges have merged with others, and nineteen have become extinct.

The state examining boards have always kept their requirements below those of the

college, yet eighteen boards have now raised their requirements to this same standard. Nebraska is practically surrounded by states with higher requirements than ours. Though one of our Medical Schools stands as high as any in the land in spite of the laws' low requirement. It is time for us to consider more than high school requirements necessary for the minimum standard. Also it is reliably known that these standards are more honestly enforced. The continuous agitation for better conditions appealed to philanthropy, so that large sums of money have added to college endowment, to medical buildings, new laboratories, teaching hospitals, and endowed chairs. The center of medical learning situated in the United States is no ideal dream. To you the youths seeking medical education must come for advice. To you the law-makers must eventually appeal in moulding legislation, and you must satisfy them.

The value of organization cannot be estimated. The purposes of the Association are "to federate and to bring into one compact organization the entire medical profession of the State of Nebraska, and to unite with similar associations in other states to form the American Medical Association, with a view to the extension of medical knowledge and to the advancement of medical science; to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interests; and to the enlightenment and direction of public opinion in regard to the great problems of state medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life."

To accomplish this we must be well organized. Some who had occasion to test our strength called us a "trust." If to work unitedly with those who are interested in these high ideals is forming a trust, it must be a good thing. A chain is only as strong as its weakest link. Upon the loyalty of the individual members working in their county society does the strength of this association depend.

Because we live on the prairies of Nebraska is no reason we do not have problems to solve. The weak who depend on the strong are always with us. Christian ideals dominate our age. The care of the insane in New York state alone requires one-eighth of the total appropriation. The burden is increasing. We are supporting through public taxation three insane hospitals, one tubercular hospital, one orthopedic hospital, one feeble-minded institution, one institution for the blind, two homes for old soldiers,

two homes for unfortunate girls, one institution for unfortunate boys and a school for the deaf. The problems that center around the enlightened control of these places must be solved by medical minds. Lest our own generosity becomes the Frankenstein of our destruction we must do our best to enlighten the public on the retardation of these increasing social blights. Social problems are ours just as surely as the problems of the bedside.

So great is the field of medical knowledge that the expert or specialist came into demand. The next step is the association of physicians in hospitals and clinics. This co-operation is noticed in many cities and towns. Association has many advantages, not only in specialization but in economy. The library, the laboratory, the clinical assistance, and the support of other opinions increase the pleasure and efficiency of practice. The patient receives greater returns in diagnosis and treatment. A modern well-trained physician is an expensive machine to be called to every case of sickness. He is a luxury that only certain ones can pay for, and at their price he cannot give them what the poor or rich may receive in the hospital.

In the University of California 7,000 students pay \$5 apiece for the care of their health. The plan is being tried in the universities of Michigan and Wisconsin. There is maintained a clinic and a staff, a hospital and its attendants for all who care to seek advice or treatment. Just how far this system can go in our rural communities I am not a prophet bold enough to say. But wherever a few physicians are located is a possibility. A way up in the sandhills I know a little village where plans are being laid for its trial.

You are all familiar with the establishment of state medicine in England. Ninety per cent of the general practitioners are working under contract with the government. The British Medical Association went down in humiliation to defeat opposing the measure. The sad thing about it all was the unpreparedness of the profession. The same old method of private practice is in vogue. It means hurried and superficial attention from the profession. Had the hospital and the clinical method been in general use, the socialization of medicine would have been a forward step. State medicine will be introduced into our country in some form before long. Let us be prepared for its inception.

Medical licensure will continue to be a live issue in Nebraska. Boards have been established for all who have rapped loud enough. At present there is a board of examiners for the osteopaths and for the chiropractors, whose requirements are lower than ours. The state should see to it that the license issued to all medical sects has uniform value. The state must protect its people from their ignorance, and from commercial exploitation. The same preliminary training, the same scientific training, and the same time spent in clinical training, and all who enter the practice could be on an equal footing. We have no quarrel with the chiropractor or the Christian Scientist per se. But we do have a quarrel

with the system that will allow short cuts to practice the healing art. To me the reappearance of the birds that prey on the unhappy victims of disease are a good deal like the Flying Dutchman. They appear at the port, but they never get in. They sail forever the seas.

This year has brought to our association some of our own problems for solution. First of all, the committee on fee-splitting have continued their work. You may ask, What have they accomplished? Three years ago our state legislature passed a law making the practice of splitting fees a crime. One year ago they made the law more drastic. Fee-splitting leads to dishonesty. A secret is kept from the patient, and any contract which is not understood by both parties is illegal and any court will so adjudicate. But our State Association is on record against the evil. The committee may not have been over-active, but they have not been impractical. The committee has left no doubt in the minds of the profession and the people where we stand. I believe the practice is lessening. Thoughtful men tell me it is their judgment that it is more secret. Drive dishonesty into the dark, and reputable men will soon put it out of use.

For some years the Western Medical Review has published our transactions. Our contract expires with this session. It will be for the House of Delegates to decide whether we shall renew a contract with the Western Medical Review, or whether the new state-owned Journal will be started. We must live up to the requirements of the Council on Pharmacy and Chemistry of the American Medical Association. Our members writing for the Journal must be assured that their articles will be reviewed by other reputable journals.

No more vital and no more difficult work is to be done than that by the committee on public policy and legislation. For some time they have felt that their work was unappreciated. Criticism has been offered, I think without consideration of the faithful efforts of those who have borne the burdens and heat of the day. A special committee is now to report on the best means to influence legislation. I do not think our association can give up this important duty. We must strive in every dignified way to bring about im-

provement in the statutes. A paid lobbyist might force through a special measure, but he would be sure to arouse the antagonism of an already hostile public. I may not anticipate the report of the committee. It is certain that any important progressive legislation must be fully comprehended by our members before they can act concertedly. All such legislation should receive the endorsement of the association at its annual meeting. Only the prevention of vicious legislation and the introduction of emergency legislation should be attempted by the committee on their own responsibility.

By this time my message may seem to be heavily freighted. There is one more important topic I must discuss with you. Public health has received the attention of people for only a few years. It is a new field, and on its development depends the longevity of nations. During the past three centuries the average span of human life has been increased from 21¼ years to 40½ years. This is due entirely to the application of science. Yet a century ago one-tenth of the population of the earth perished from plague. In 1873 to 1876, 700,000 people died in Calcutta and Bombay of the same disease. Every person in England had or expected to have smallpox. In the United States there are annually 3,000,000 people seriously ill, while 500,000 are consumptives. If we appraise each tubercular person lost at \$1,700 and adult earning capacity at \$700 per year, for that disease alone the cost exceeds one and one-half billion dollars.

No extended statistics are necessary to make you realize the importance of public health work. The United States is spending wisely much money on hog cholera, on foot and mouth disease, and other animal and plant diseases. Her efforts toward alleviating the unhealthful conditions of her citizens are confined to a Bureau under the Treasury Department. This department has authority on the seas and in our ports, but in the states she has only advisory power. To some strong, efficient authority must be given means and power for this great duty. The public health service is trying to correlate the work in the different states so that all will be working toward the same end. A Federal Department of Health in Washington is also hoped for.

Our constitution in Nebraska was forged in the pioneer days, but from year to year, by amendment of statutes, progress has been made. For some time it has been apparent that efficient administration was impossible without centralization of power and authority. We have a board of laymen constituting the Board of Health, that is, the governor, the attorney-general, and the superintendent of public instruction. Then there has been an auxiliary board of medical men with expressed authority to examine candidates for license, and with disputed authority to control the activities which any Board of Health

should be expected to do. Thus we have found good men often working at cross purposes. If the records were examined, it would be found that the Board of Secretaries have often made rulings endeavoring to clarify this situation.

Be that as it may, Governor Morehead as President of the Board of Health invited the Public Health Service to send a man to make a study of our health organization in Nebraska. This man was to be an expert and an impartial person. Dr. Carroll Fox was detailed. After two months he has just left, and his report is now in the hands of his chief in Washington. Dr. Trask, Assistant Surgeon-General, has promised to send to each member of our association a copy of this report. From close association with Dr. Fox I know he will recommend changes that are not too ideal for adoption, but that he feels will fit our local conditions. The application of his report will not be entirely revolutionary. The expense will be greater, but still far under the two per cent of the total state appropriations recommended for all states.

Should our association consider the endorsement of this report, and appoint a special committee to assist in carrying the legislation through to fulfillment, no time should be lost in getting under way.

A modern state health organization requires three fundamental principles:

1. Active interest of the public in health agencies.
2. Adequate appropriations and personnel.
3. Co-operation of health agencies with one another.

Boards are too cumbersome to act in the capacity of an executive in a Health Department. A single head is required, and his essential characteristics are definite. He must have full executive power. He must appoint his subordinates. He must be trained in public health work, and skilled in sanitary science and administration. Back of him must be a board to direct his policies, but political considerations must not enter into his appointment or that of his subordinates.

The department must be systematized and each division headed by a chief. There must be men in the field, for there will be much to

do. The chief functions of the department will come under the following headings:

1. Complete registration of vital statistics.
2. Control of communicable diseases.
3. Child hygiene.
4. Supervision of water and sewerage.
5. Public health education.

The recommendations I will give now are in harmony with the views of Dr. Fox.

After a thorough study of the state board of health and a careful consideration of the public health needs of the state, it may be concluded that much of the trouble arising within the state health body is due to the absence of an administrative head, clothed with authority and responsibility, and to the lack of a proper organization to carry on the necessary work. In order to correct this, the following recommendations are made:

1. That the name of the state health organization be changed to the state department of health.

2. That a full-time state health officer to act as executive officer of the board of health be appointed by the state board of health, at a salary of not less than \$3,000 per annum. That the state health officer be a physician with previous experience in public health work, and that he hold his office so long as he renders efficient services to the state. That he receive his appointment only after passing a competitive examination before the board of health and the advisory board, the questions to be submitted and the papers graded by the U. S. Public Health Service.

3. That the state department of health be divided into the state board of health, the executive office, a bureau of epidemiology, a bureau of public health engineering, and a bureau of vital statistics.

4. That the bureau of epidemiology be placed in charge of a full-time chief, or epidemiologist, to be appointed by the state board of health upon the recommendation of the state health officer; that he hold his position so long as he renders efficient service to the state, and that his salary be not less than \$2,500 per year.

5. That a full-time chief or sanitary engineer be placed in charge of the bureau of public health engineering. That he be ap-

pointed by the board of health upon the recommendation of the state health officer at a salary of not less than \$2,000 per annum, and that he hold his office so long as he renders efficient services to the state.

6. That a full-time chief or statistician be placed in charge of the bureau of vital statistics, that he be appointed by the state board of health upon the recommendation of the state health officer, at a salary of not less than \$1,200 per annum, and that he hold his office so long as he renders efficient service to the state.

7. That the position now designated state health inspector be changed to that of chief of the bureau of epidemiology.

8. That in addition to the above, the personnel of the state department of health be increased by the addition of one laboratory attendant and at least three clerks.

9. That all of the employees of the health department be full time and hold their offices during efficiency.

10. That the bureau of epidemiology be made responsible for the collection of morbidity reports, the control of preventable diseases, the work of the diagnostic laboratory, and the supervision of the activities of local health authorities.

11. That the bureau of public health engineering be made responsible for the activities concerned in the maintenance of the purity of water supplies, the disposal of sewage, garbage and trades wastes, and the laboratory work entailed in the analysis of water and sewage.

12. That the bureau of vital statistics be made responsible for the collection of birth and death certificates, marriage and divorce reports, and the compilation and tabulation of information relating to the public health.

13. That the laboratory be divided into two parts, the diagnostic and the water and sewage laboratory. That the former be made a division of the bureau of epidemiology and the latter a division of the bureau of public health engineering.

14. That the work of the laboratory be extended both in amount and in scope so that the physicians and health officers of the state may have greater facilities to assist

them in the diagnosis of communicable diseases.

15. That without delay, energetic efforts be made in the localities to increase the efficiency of birth and death registrations and the notification of reportable diseases.

16. That popular literature on the different subjects of public health be published by the state board of health and distributed among the citizens of the state.

17. That as soon as practicable, a public health exhibit be acquired by the state board of health and exhibited in the different communities of the state, accompanied by lectures and moving pictures.

18. That the advisory board be retained as an examining board, and in a purely advisory capacity, i. e., to give advice when called upon by the state board of health, but to have no administrative or controlling function.

19. That the advisory board meet jointly with the state board of health upon the call of the president of the board of health.

20. That not less than \$24,700 per annum be appropriated to the state board of health to be used in the following manner, at the discretion of the state board of health.

1 state health officer at not less than	\$3,000
	annually
1 epidemiologist at not less than.....	2,500
1 sanitary engineer at not less than.....	2,000
1 bacteriologist at not less than.....	1,800
1 statistician at not less than.....	1,200
1 laboratory attendant at not less than	840
4 clerks and stenographers at not less than	3,360
Maintenance of health department, including traveling expenses, laboratory expenses, printing, etc., at not less than	10,000
Total	\$24,700

21. That larger quarters for the state department of health be provided in the state house at Lincoln.

22. That a record of the expenditures be kept by the state department of health, according to the nature of the expense and the bureau incurring it, so that the cost of maintaining any bureau, or the cost of any activity

or item, may be determined at a moment's notice and without effort.

23. That the regulations of the state board of health be amended to provide for vaccination against smallpox.

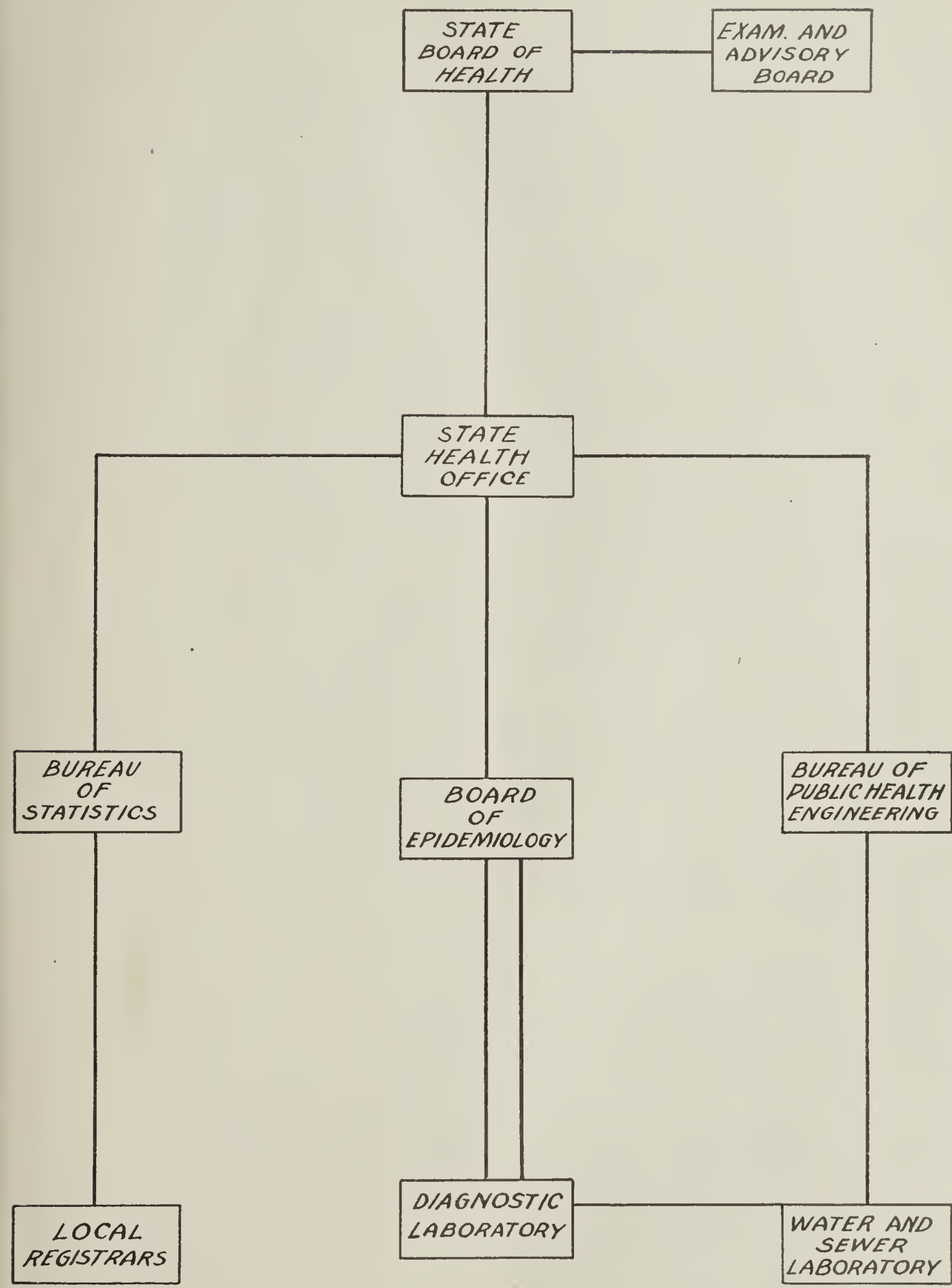
The above recommendations are made for the purpose of placing the state health organization in Nebraska on a par with other states having a progressive state health department, as well as to provide an adequate organization for carrying on the necessary public health work required in the state immediately.

In addition to the above it will be necessary to add to this organization in the future, and for this purpose the following recommendations are made.

24. That as soon as practicable, a chemist be employed to be placed in charge of the water and sewage laboratory under the direction of the sanitary engineer.

25. That the state be divided into not less than four districts, each district to have a full-time district health officer, who must be a physician with previous experience in public health work, and to receive not less than \$1,800 per annum. That the district health officer be made responsible to the state health officer and the epidemiologist for the efficiency of his work and that he hold office so long as he renders satisfactory service to the state. That he perform within his district all the work required of a public health official, including the control of communicable diseases, the delivery of public health lectures, the supervision of local health authorities, supervision over the milk supply, the collection of morbidity reports and reports of births and deaths, the health supervision of schools in rural districts, etc.

26. That in order to defray the expenses of the district health organization, including the salary of the district health officer and assistant, necessary traveling expenses, etc., there be appropriated the sum of \$20,000, or \$5,000 for each district.



LEUCOCYTE EXTRACT.*

John S. Simms, M. D., North Platte, Neb.

The mechanism of the various factors which enter into what, I believe, we may term the reaction of immunity is little enough known. This report is to call your attention, from a theoretical standpoint, to the contribution of the white cells in the body's fight against infection; especially their function other than as phagocytes.

Thomas and Ivy consider phagocytosis as "a more or less passive endeavor to remove foreign particles from the circulation" (1) They point out that the gonococcus is intracellular yet the disease progresses, and experiments show that different varieties of bacteria may retain their vitality after being taken up by the leucocytes. That the leucocytes do not have a specific action such as the various agglutinins, precipitins, etc., may readily be inferred from the fact that various chemical irritants as turpentine and aleuronat may produce a leucocytosis; and also that we are unable to distinguish any differences in the leucocytosis of the several infectious diseases. The authors quoted state the proposition as follows:

"Experimental and clinical evidence leads to the belief that there are in the blood two types of bacteriocidal substances, (a) leucocytic bacteriocidin, (b) humoral bacteriocidin, and that certain varieties of bacteria are destroyed by the one, and other varieties by the other. These two types are found in the blood plasma, while the blood serum contains only the humoral substance. It has been found that streptococci and pneumococci are killed only by the blood plasma, i. e. by the leucocyte substances; these organisms multiply in serum alone. On the other hand typhoid bacilli are destroyed by serum or humoral bacteriocidins." (2)

In this way is explained the leucocytosis or leucopenia characteristic of the different diseases. Another significant fact is that in a study of the locus of anti-body formation, the leucocytes are found to play a very minor part, if any at all. "It is probable that the humoral bacteriocidal substances are specific,

while the leucocyte substance is non-specific." (3)

The first work in the treatment of infections by a non-specific leucocyte product was reported by Hiss in 1908 (5). Briefly, the extract he used was prepared by injecting a sterile solution of aleuronat into the pleural cavities of rabbits and after 24 hours drawing off the resulting cellular exudate. This is immediately centrifuged, the serum rejected and the precipitated leucocytes extracted with sterile water. The water is added in the ratio of ten volumes to one of sediment. After satisfactory animal experimentation, clinical trials were made. The most satisfactory results were found in Meningococcus, Pneumococcus, Streptococcus and Staphylococcus infections. (5) In erysipelas in infants, i. e. under one year of age, there were eight recoveries in twelve cases—certainly a remarkable record. Time will not permit a further discussion of his results.

Mr. L. age 37, married, one child. He has had pneumonia and typhoid. For a number of years has been subject to "bilious spells" with frequent headaches and "indigestion." On the day previous he had taken a cathartic, which usually relieved a bilious attack, as he supposed this to be. Obtaining no relief I was called and found a temperature of 103°, slight icterus and marked tenderness under the right costal margin on deep palpation. Under medical treatment he felt much better the next day and dressed on the morning of the third day. But after a short time he experienced a severe chill and returned to bed, where I saw him again with findings practically as before. He was removed to the North Platte General Hospital and the next morning with the assistance of Dr. Redfield the gallbladder was drained. This was somewhat distended, the wall red and thickened and contained no stones but a large amount of the thick black mucous generally found. The patient was awake in a short time with no signs of shock. During the first 36 hours the drainage was slight but became free after that. However the patient was in a very septic state with the temperature averaging about 104°, pulse 120 and respiration 30. At no time was there any vomiting or other signs of peritoneal irritation. He improved slowly and on the fifth day the temperature averaged about 102°, pulse 120 and respiration 24. On the eleventh day the respiration jumped to 35, with pain in the right chest, streaked sputum and signs of consolidation. The following day the respiration was 40, pulse 130 and temperature between 101° and 102°. For the next three days the condition of the patient was desperate and he appeared to be simply overwhelmed with the intoxication. He was having profuse sweats every two or

*Read before Nebraska State Medical Association, May, 1916.

three hours and after each one felt very much weaker and the outcome appeared very doubtful. On the fifth day of his pneumonia I gave him three 10 c.c. injections of Leucocyte Extract at four hour intervals. The following noon the temperature was 99° and the improvement in his general condition was remarkable. The drenching sweats of the past days were practically absent. That this was simply an early natural crisis of the pneumonia is possible, although I do not think so and this belief is strengthened by the change which took place in the wound. During this time there had been* practically no wound repair and in spite of very firm abdominal support the coughing had caused the tension sutures to cut through and the wound was open, except peritoneum, with a severe purulent discharge. The same time that his general improvement began there was a marked change in the discharge. Instead of the dressings being soaked there was only a small amount of a sero-fibrinous material and in about a week the wound was covered with apparently healthy granulations. From then the convalescence was uneventful.

It was evident that a firm abdominal wall would not result without some repair and since this man could not well lie around for several months waiting for complete healing to take place, I resolved on an intermediate repair in the presence of the fresh granulations and the known infection, depending on the Leucocyte Extract to care for it. Accordingly, on Nov. first the granulations were cleaned off, scar tissue removed and the muscles and fascia identified. The fascia was imbricated and the wound closed using large silver wire tension sutures. Twisted silkworm drains were placed at the angles of the wound. The patient was given 30 c.c. of the Extract the same day. He was quite uncomfortable following this and on the third day complained of severe pain in the wound, "like a large boil" as he expressed it. The region of the wound was swollen, red and appeared about to break down. Temperature was 101°, pulse 96 and respiration 24. Three 10 c.c. doses of the Extract were given as before, dressings moistened with Wrights solution and covered with hot packs. This was followed by much relief and two days later the Extract was repeated. The following day the temperature became normal and remained so, the tenderness and swelling of the wound were absent and the patient perfectly comfortable. Since leaving the hospital he has been doing the usual work on the ranch and there is no sign of hernia. The bilious attacks, headache and indigestion have not returned and he states that he feels better than he has for years. Of course we can draw no conclusions from such a limited experience and is reported to illustrate the use of one of the newer remedies.

(1) Thomas and Ivy—Applied Immunology, 1915, P. 212. ...

(2) *ibid*, P 214.

(3) Gay and Lusk—Studies on the Locus of Antibody Formation—Transactions of the

15th International Congress on Hygiene and Demography, Vol. II-328.

(4) Hanson Hiss—*ibid*—Vol. II-62.

(5) Hanson Hiss—*Jour. Med. Research*, XIX-323.

BIBLIOGRAPHY.

Kling—*Ztschr. f. Immunitätsforsch* 1910, VII, No. 1.

Petterson—*Centralbl. f. Bakteriöl*, 1911, LX p. 286.

Manwaring—*Jour. Exper. Med.*, 1912, XVI, No. 3.

Hiss and Zinsser—*Jour. Med. Research*, 1908 XIX No. 3.

Hiss and Dwyer—*Med. Record*, Sept. 13, 1913.

Hiss and Zinsser—*Jour. Med. Research*, XX p. 245.

Alexander, Nauss and Williams—*Liver. Med. Chir. Jour.* Jan. 1911.

Alexander—*Brit. Med. Jour.* Feb. 18, 1911.

Dwyer—*Med. Record*, May 30, 1914.

Floyd and Lucas—*Jour. Med. Research*, XIX pp. 223-254.

A. Lambert—*Proc. N. Y. Surg. Soc.* Jan. 12, 1910.

S. Lambert—*Am. Jour. Med. Sc.* 1909 p 506.

McCollough—*Annals Otol. Rhin. & Laryn.* XXI p. 387.

Reynolds—*Calif. State Jour. Med.* Nov. 1914.

THE FORTY-EIGHTH ANNUAL MEETING OF THE NEBRASKA STATE MEDICAL ASSOCIATION.

Proceedings of the House of Delegates.

FIRST SESSION.

Omaha, Nebraska, Tuesday, May 23, 1916.

The Nebraska State Medical Association convened in its Forty-eighth Annual Session at the Fontenelle Hotel, Omaha, on Tuesday, May 23rd, 1916, at 9 o'clock a. m.

Meeting called to order by President E. W. Rowe, of Lincoln. In a few well-chosen words, Dr. C. A. Hull of Omaha, welcomed the physicians of the State Medical Society to Omaha, on behalf of the City, and the Douglas-Sarpy County Medical Society. His cordial welcome was responded to by Dr. E. W. Rowe, of Lincoln.

The General Session adjourned and the House of Delegates was immediately convened by President Rowe. Roll call showed twenty-four delegates present.

On motion duly made and seconded, it was voted to dispense with the reading of the minutes of the last Session.

Dr. Wm. N. Anderson of Omaha, was elected president pro tem of the House of Delegates.

Secretary Aikin reported that he had received fees from six counties which had been suspended on account of delinquency. It was moved and seconded that the delinquent counties mentioned be reinstated and delegates, if present, be seated. The motion was unanimously carried.

The following reports of officers and Committees were read and referred to the Board of Councilors:

Reports of—

- Secretary;
- Treasurer;
- Librarian;
- Scientific Committee;
- Committee on Public Policy and Legislation;
- Committee on Publication;
- Committee on Care and Prevention of Contagious Diseases;
- Committee on Medico-Legal Defense;
- Censor Committee;
- Delegate to Council on Medical Education.

The treasurer's report was referred to the Auditing Committee.

On motion duly made and seconded, it was unanimously voted to suspend the rules of the House and permit the Report of the Special Committee on Plans for State Association Journal to be heard out of order. The report of this Committee was read by Dr. Long and referred to the Board of Councilors.

The Secretary read a number of communications and same were referred to the Board of Councilors.

The House of Delegates then adjourned to 5 o'clock p. m., Tuesday, May 23rd.

JOSEPH M. AIKIN, Secretary.

HOUSE OF DELEGATES—SECOND SESSION.

Omaha, Nebraska, May 23, 1916.

Pursuant to adjournment, the House of Delegates met at 5 o'clock p. m., and was called to order by President Rowe.

Twenty-seven delegates responded to roll call.

The minutes of the morning session were read by Secretary Aikin and approved.

President Rowe announced the names of the nominating Committee, by Districts, as follows:

- First District—R. A. Dodge, Omaha.
- Second District—E. S. Wenger, Lincoln.
- Third District—E. B. Brooks, Pawnee City.
- Fourth District—F. H. Kucera, Verdigre.
- Fifth District—L. L. Burstien, Blair.
- Sixth District—E. O. Weber, Wahoo.
- Seventh District—Porter F. Dodson, Wilber.

Eighth District—W. J. Douglas, Atkinson.

Ninth District—F. A. Burnham, Arnold.

Tenth District—W. L. Sucha, Hastings.

Eleventh District—H. E. Mantor, Sidney.

Twelfth District—M. Stewart, Tecumseh.

The Auditing Committee was announced by President Rowe as follows:

W. J. Douglas, Atkinson.

W. S. Evans, Columbus.

E. B. Brooks, Pawnee City.

H. E. Mantor, Sidney.

Roy A. Dodge, Omaha.

The following reports were received and referred to the Council:

Report of Delegate to American Medical Association, A. R. Mitchell. Report of Committee on Health and Public Education among Women, by its chairman, Daisy M. Hansen.

Motion by P. F. Dodson, seconded by C. P. Fall, that the House suspend the Rules and hear the report of an unofficial committee, composed of Drs. Mayhew, Gifford and Mitchell. The report contained recommendations pertaining to public health legislation. The motion prevailed and the report was presented to Chairman Mayhew.

Report of Special Committee on Public Policy and Legislation was presented by its chairman, C. P. Fall, and referred to the Council.

A proposed by-law by Dr. Christie was tabled.

On motion duly made and seconded, the House of Delegates adjourned to meet at 8 a. m. Wednesday, May 24th.

JOSEPH M. AIKIN, Secretary.

HOUSE OF DELEGATES—THIRD SESSION.

Omaha, Nebraska, May 24, 1916.

Pursuant to adjournment, the House of Delegates convened at 8 o'clock a. m., and was called to order by President Rowe.

Roll call by the Secretary showed thirteen delegates present, with ten past presidents and other officers. A quorum was present.

The first order of business was the reading of the Minutes of the previous day's sessions, which were approved.

President Rowe announced the next order of business to be the receiving of reports of standing and special committees not yet presented.

The Committee on Cancer reported through its chairman, A. C. Stokes. The report was accepted and ordered placed on file.

Dr. Stokes also reported orally as chairman of the Committee on the Association of Medical Colleges, and the same was accepted.

President Rowe announced that the next order of business would be a discussion of an amendment to the By-Laws. This amendment was presented by Dr. A. S. von Mansfelde as follows: Strike out from the amendment the words "except the chairman."

It was moved by J. P. Lord, seconded by P. F. Dodson, that the resolution carrying this amendment be adopted. Motion carried.

Secretary Dillon, of the Board of Councilors, presented the report of the first meeting of Councilors.

President Rowe announced that the House would proceed to the consideration of the report of Coun-

cil, and upon motion by A. S. von Mansfelde, seconded by J. P. Gilligan, and carried, the report was taken up seriatim.

First recommendation, that a request contained in communication from Mr. Dunn to Dr. Jonas concerning labor troubles of Union Pacific Railway employes, be denied.

Upon motion by P. F. Dodson, duly seconded, this recommendation of Council was adopted.

Second recommendation, having been disposed of, was not taken up.

Third recommendation, that the report of the Medico-Legal Defense Committee be approved and placed on file. On motion by J. V. Beghtol, duly seconded, this recommendation of Council was adopted.

Fourth recommendation, approving and placing on file report of Librarian. Upon motion duly made and seconded, this recommendation was adopted.

Fifth recommendation, approving and placing on file report of Secretary. Upon motion duly made and seconded, this recommendation was adopted.

Sixth recommendation, approving and placing on file report of Program Committee. Upon motion duly made and seconded, this recommendation was adopted.

Seventh recommendation, that "the Secretary be empowered to use such part of the general funds, etc." It was explained by Secretary Dillon that this action might possibly entail a slight addition to the budget in order to cover incidental expenses referred to. Upon motion duly made and seconded the recommendation was adopted.

Eighth recommendation, approving and placing on file report of Committee on Publication. Upon motion duly made and seconded, this recommendation was adopted.

Ninth recommendation, approving and placing on file the report of Committee on Public Policy and Legislation. Motion to adopt was made and seconded. Chairman Wilson of the Committee, and Secretary Dillon of the Council, explained that it was not contemplated that the adoption of the report should include the communications from Dr. Fox which were attached thereto, but only the report of the Committee up to their signatures. A substitute motion was offered by Dr. Cutter, seconded by Dr. Douglas, for the adoption of the report as explained. The substitute motion was carried, and the recommendation adopted.

Tenth recommendation, approving and placing on file report of the Committee on Care and Prevention of Contagious Diseases. Upon motion of J. V. Beghtol, duly seconded, this recommendation was adopted.

Eleventh recommendation, approving and placing on file the report of the Board of Censors. On motion duly seconded, this recommendation was adopted.

Twelfth recommendation, regarding report of Committee on plans for State Association Journal. The adoption of this recommendation was moved and seconded. After considerable discussion, a substitute motion was offered by C. P. Fall of Beatrice, sec-

onded by Homer Davis, of Genoa, that this matter be referred to a committee of three to report to this body later. After further discussion, Dr. Fall requested, with the consent of his second, the privilege of withdrawing his motion. This was granted by the chair.

A substitute motion was then offered by W. N. Anderson, of Omaha, seconded by W. J. Douglas, of Atkinson, that the House make this a special order of business at 5 o'clock p. m., the same day, May 24th. The substitute motion was carried.

Upon motion, the House of Delegates adjourned to meet at 5 o'clock p. m. Wednesday, May 24th.

JOSEPH M. AIKIN, Secretary.

HOUSE OF DELEGATES— ADJOURNED SESSION.

Omaha, Nebraska, May 24, 1916.

The adjourned session of the House of Delegates was called to order at 5 o'clock p. m., Wednesday, by President Rowe. Roll call by the Secretary showed twenty-one delegates present.

Upon motion of C. P. Fall, duly seconded, the following delegates were seated from their respective counties:

H. A. Copsey, Box Butte.

Geo. Bentz, Clay.

J. H. Fochtman, Dawson.

L. Phelan, Hall.

J. S. Butler, Howard.

C. A. Brown, Nemaha.

S. F. Sanders, Phelps.

J. A. Garner, Harlan.

J. M. Willis, Furnas.

A. B. Stratton, Fillmore.

Dr. von Mansfelde called for the reading of the report of the committee on State Medical Journal. Upon motion of J. P. Gilligan, duly seconded, the recommendations of the Committee on State Medical Journal, were read.

President Rowe suggested that in the discussion following, any one wishing to speak to the motion speak but once.

Moved by Lucien Stark of Hartington, and seconded, that all discussion be limited to five minutes and no delegate be given the floor more than once. The motion was carried, by a rising vote.

Moved by S. A. Swenson of Oakland, seconded by Hildreth, that the House of Delegates adopt the report of the Committee.

After thorough discussion the motion was carried.

Chairman Douglas asked to be allowed to present the report of the Auditing Committee. Upon motion of I. H. Dillon, seconded by J. V. Beghtol, the report was adopted.

Secretary Dillon of the Council, offered for its passage an amendment to the by-laws of the State Medical Association, as follows:

PROPOSED AMENDMENT TO THE BY-LAWS OF
THE NEBRASKA STATE MEDICAL
ASSOCIATION.

By adding a Chapter on Journal.

CHAPTER—"THE JOURNAL"

Sec. 1. The House of Delegates shall establish an official Journal of the Nebraska State Medical Association which shall be called The Nebraska State Medical Journal.

Sec. 2. The Journal shall be published monthly, and mailed not later than the fifteenth of each month, and it shall contain the papers and proceedings of the Annual Meetings, and such other matter as may be of interest to the members.

Sec. 3. The Journal shall contain not less than 48 pages each issue and editorials shall be given a prominent place.

Sec. 4. The Advertising Policy of the Journal shall be that of the Journal of the American Medical Association and its Council on Pharmacy and Chemistry.

Sec. 5. The House of Delegates shall elect a Journal Committee of three (3) of which the Secretary is one. They shall be elected, one for one (1) year, one (1) for two (2) years, and one (1) for three (3) years. One member shall be elected at each annual meeting of the State Medical Association.

This Committee shall have complete management of the Journal, with power to contract for advertisements and publication and also to select an Editor, fix his compensation, which shall not exceed Fifty (\$50.00) Dollars per month, including all the office expenses, stenographic and clerical work necessary to the office. The Committee shall report to the House of Delegates at the next Annual Meeting.

All money received by the Journal Committee shall be turned over to the Treasurer at the end of each calendar month, and shall be kept in a separate fund known as the Journal Fund.

Salaries and Expenses shall be paid by the Treasurer out of the Journal Fund, on a written order of the Secretary, countersigned by the President."

Motion by I. S. Cutter to amend Section 5 of the proposed By-Law to read "four" members instead of "three," said committee to include the three members already on this committee and the secretary

of the association, ex officio. Motion seconded by Homer Davis, and carried. On motion the By-Law was adopted.

Motion by W. J. Douglas that the present Journal Committee be selected to head the Journal for the next three years and be chosen as follows: B. F. Bailey, for one year; F. A. Long, for two years; and W. O. Bridges, for three years; Secretary Aikin member ex officio. Seconded by J. V. Beghtol and carried.

It was announced by the Secretary that the bond of the Treasurer expired with this meeting, and upon motion of F. A. Long duly seconded, the secretary was instructed to take up the matter of renewal of this bond.

Secretary Aikin stated that he had been unable to find any record of the State Medical Association ever having been placed upon a legal basis as a corporation in Nebraska.

After some discussion, it was moved by J. P. Lord, seconded by M. S. Moore and carried, that the officers of the Association be constituted a committee to gather the desired information and take such steps as may be necessary to put the association on a proper basis.

The following communication was read by the Secretary:

"TO THE NEBRASKA STATE MEDICAL ASSOCIATION:

In accordance with my instructions from the Lancaster County Medical Society at its last regular meeting, I extend to this Association a hearty welcome to hold its next Annual Meeting at Lincoln as the guest of the Lancaster County Medical Society.

(Signed) J. J. Hompes,

Secretary."

Upon motion the House of Delegates adjourned to 8 o'clock a. m., May 25th.

JOSEPH M. AIKIN, Secretary.

HOUSE OF DELEGATES—FOURTH SESSION.

Omaha, Nebraska, Thursday, May 25, 1916.

Pursuant to adjournment, the House of Delegates convened at 8 a. m., President Rowe, presiding. Roll call showed twenty-one delegates and eleven ex-officio members present.

On motion duly made, seconded, and carried, W. R. Fouts, of Richardson County, and H. J. Newell of Thayer County, were seated as delegates.

The Secretary read the minutes of the previous meeting. On motion duly made and seconded, the minutes were adopted as read.

The first order of business was the report of the Nominating Committee, and the election of officers.

R. A. Dodge, chairman of the Nominating Committee, reported as follows:

For President: W. F. Milroy, of Omaha; J. V. Beghtol, of Hastings; John I. McGirr, of Beatrice.

For Vice Presidents: M. S. Moore, of Gothenburg; Porter F. Dodson, of Wilber.

For Councilors: 5th District, R. C. Byers;

6th District, E. O. Weber; 7th District, W. L. Curtis; 8th District, W. J. Douglas.

Delegate to A. M. A., 2 years: J. M. Aikin, I. H. Dillon.

On motion in the House, Leroy Crummer was added to the list of nominees for delegate to A. M. A.

The Chair appointed as tellers, Geo. H. Bentz, L. Phelan and E. S. Wenger.

Election was by secret ballot.

On the first ballot, W. F. Milroy was elected President of the Association, M. S. Moore and Porter F. Dodson were elected Vice Presidents, R. C. Byers, E. O. Weber, W. L. Curtis, W. J. Douglas were elected councilors from the 5th, 6th, 7th and 8th districts, respectively.

On the first ballot for delegate, to A. M. A., J. M. Aikin and I. H. Dillon received the same number of votes, and Leroy Crummer the lowest number. The Chair announced no election, and requested that a second ballot be prepared. On motion duly made, seconded and carried, Leroy Crummer's name was dropped from the list of candidates. The ballot showed I. H. Dillon elected as delegate for the next two years. J. M. Aikin, receiving the lesser number of votes, was declared alternate delegate.

The Nominating Committee not having named a candidate for a member of the Medico-Legal Defense Committee, it was moved by I. H. Dillon, seconded by R. A. Dodge, that the Secretary be instructed to cast the vote of the House for Dr. A. S. von Mansfelde as chairman of the Medico-Legal Defense Committee. Motion prevailed. The Secretary thereupon cast a ballot for Dr. A. S. von Mansfelde.

Moved by Dr. von Mansfelde that the President be empowered to appoint the standing and special committees of this session. This motion was seconded by I. H. Dillon. Motion prevailed.

Report of Board of Councilors read by I. H. Dillon, and the recommendations contained therein acted upon as follows:

First recommendation, that the Report of the Committee on Cancer be adopted. On motion, the recommendation was adopted.

Second recommendation, that the report of the Necrology Committee be adopted. On motion duly made and seconded the report was adopted by rising vote.

Third recommendation, that the address of President Rowe be approved and that it appear in the July issue of the Nebraska Medical Journal. On motion duly made and seconded, this recommendation was adopted.

Fourth recommendation, that the report of the Special Committee on Public Policy and Legislation be adopted. On motion it was adopted.

Fifth recommendation, that the communication of the volunteer committee, composed of J. M. Mayhew, A. R. Mitchell, and H. Gifford, be received and laid on the table. On motion this recommendation was adopted.

Sixth recommendation, that the report of Daisy M. Hanson, chairman of the Committee on Health

and Public Instruction for Education among Women, be adopted. On motion duly seconded this recommendation was adopted.

Upon motion duly seconded, the budget prepared by the Council for the ensuing year as presented in their report was approved.

The Council recommended that the bill of Daisy M. Hanson, Chairman of the Committee on Health and Public Instruction for Education among Women, for \$57.86, be not allowed for the reason that no appropriation was made for this Committee. On motion duly seconded, this recommendation was adopted.

The Council recommended that the claim filed by P. J. Flynn, Councilor from the Tenth District, for \$10.00 be not allowed for the reason that the same was not properly itemized and presented as required by the by-laws. On motion duly seconded this recommendation was adopted.

Upon motion duly seconded, the following recommendation of the Council was adopted: That the House of Delegates extend a vote of thanks to the officials of the Association for the efficient manner in which they have conducted the affairs of the Association during the past year.

On motion duly seconded, the following recommendation of the Council was adopted: That the House of Delegates extend a vote of thanks to the members of the Omaha-Douglas County Medical Society for the delightful entertainment furnished this Association during its meeting.

On motion duly seconded, the following recommendation of the Council was adopted: That the House of Delegates extend to the management of the Fontenelle Hotel a vote of thanks for the courtesies extended to the members of this Association during their convention.

Inasmuch as President's address recommends that a special committee, to confer with like committees to be appointed by other medical societies of the State to draft medical legislation, be appointed by this Association, it was moved and seconded, that the President appoint a committee of four for this purpose. Motion prevailed.

The Secretary reported a communication from the United States Medical Service, in which they ask that he read to this session a resolution asking support for medical help to Indians to be paid for by the Government.

Moved by A. S. von Mansfelde seconded by I. H. Dillon, that the matter be referred to the incoming president and secretary for action. Motion prevailed.

Report of Committee on Fee Splitting was read by the Secretary. It was moved and seconded that the report as received be adopted, and that the Committee be continued for the coming year. Motion prevailed.

I. H. Dillon stated that since the by-laws and constitution of this Society were issued some years ago, there have been a number of corrections made by the House of Delegates, and some sections in the constitution are now obsolete. Dr. Dillon moved that a committee of three be appointed to take up the mat-

ter of revision of the constitution and by-laws and present a revised constitution and by-laws at the 1917 session of the House of Delegates.

Seconded by A. S. von Mansfelde and carried.

At a previous session of the House of Delegates B. W. Christie had presented the following resolution, which was tabled:

"Resolved that the following by-law be enacted. That all members of the State Medical Association, when they register, pay a fee of \$1.00 (One Dollar), this money to be used to defray incidental expenses of the concurrent meeting."

It was moved and seconded that this resolution be lifted from the table. After some discussion the question was put to a vote and lost.

A. S. von Mansfelde explained that the office of one of the members of the Medico-Legal Defense Committee expires soon, and asked that this Association lift the responsibility from the shoulders of the President and that J. S. Welch be elected member of the Medico-Legal Defense Committee for the next year. Seconded by J. M. Aikin and carried.

On motion the House adjourned sine die.

JOSEPH M. AIKIN, Secretary.

Summary of the PROCEEDINGS OF THE BOARD OF COUNCILORS—FIRST SESSION.

Omaha, Nebraska, Tuesday, May 23, 1916.

The Board of Councilors met for its first session at 2:00 p. m. and was called to order by President M. S. Moore.

Present: Drs. Stark, Curtis, Byers, Stewart, Flynn, Gilligan and Secretary Dillon.

President E. W. Rowe, of the State Association, appeared before the Council with a recommendation concerning claim of Daisy Hanson for \$57.00.

Moved by I. H. Dillon, seconded by W. L. Curtis, that the report of the Medico-Legal Defense Committee be approved and placed on file. Carried.

Moved by I. H. Dillon, seconded by W. L. Curtis, that the report of the Librarian be approved and placed on file. Carried.

Moved by Secretary Dillon, seconded by J. P. Gilligan, that the report of the Secretary of the State Association, be accepted and placed on file. Carried.

Moved by Secretary Dillon, seconded by J. P. Gilligan, that the report of the Program Committee be accepted and placed on file. Carried.

Moved by Lucien Stark, seconded by W. L. Curtis, that the Council recommend that the Secretary be empowered to use such part of the general funds of the Secretary's office as may be necessary, toward defraying the incidental office expense of the various committees of which he is ex-officio chairman. Carried.

On motion duly made and seconded, the Report of Committee on Publication was accepted and placed on file.

On motion duly made and seconded, Report of the Committee on Public Policy and Legislation was accepted and placed on file.

On motion duly seconded, the Report of the Com-

mittee on Care and Prevention of Contagious Diseases was received, approved and placed on file.

On motion duly seconded, the report of the Board of Censors was received, approved and placed on file.

On motion duly seconded and carried, the report of the Committee on Plans for State Association Journal was received, approved and placed on file.

It was moved, seconded and carried that the Board of Councilors recommend to the House of Delegates that the communication from the Western Medical Review Publishing Co., and Wm. Wild, be laid on the table.

Upon motion the Council adjourned to 8 o'clock a. m. Wednesday, May 24th.

I. H. DILLON, Secretary.

BOARD OF COUNCILORS—SECOND SESSION.

Omaha, Nebraska, Wednesday, May 24, 1916.

Pursuant to adjournment, the Board of Councilors met at 8 o'clock a. m. President Moore presiding.

Present: Drs. Moore, Curtis, Stark, Stewart, Gilligan and Secretary Dillon.

The report of the Special Committee on Public Policy and Legislation was read by Secretary Dillon. It was endorsed and referred to the House of Delegates with the recommendation that it be adopted.

It was moved by Secretary Dillon and seconded by Lucien Stark, that the communication of the self-appointed committee, composed of Drs. Mayhew, Mitchell and Gifford, be received and laid on the table. The motion prevailed.

The report of the Committee on Health and Public Instruction for Education among Women was received and ordered placed on file.

On motion the Council adjourned to meet at the call of the President.

I. H. DILLON, Secretary.

BOARD OF COUNCILORS—THIRD SESSION.

Omaha, Nebraska, Wednesday, May 24, 1916.

Pursuant to adjournment the Councilors convened at 5 o'clock p. m., May 24th, Wednesday. Called to order by President Moore.

Present: Drs. Stark, Curtis, Gilligan, Moore and Secretary Dillon.

The Report of the Committee on Cancer was received, and its adoption recommended.

The report of the Necrology Committee was presented by I. H. Dillon. It was referred to the House of Delegates with the recommendation that it be adopted.

The Address of President Rowe was carefully considered, and it was moved that it be referred to the Committee on Publication, with the recommendation that it appear in the July issue of the Nebraska State Medical Journal. Motion seconded and carried.

The following Budget was prepared for the ensuing year:

Nebraska State Medical Journal.....	\$1250
Committee on Public Policy & Legisla-	
tion	200
Secretary's Office.....	300

Secretary's Salary	200
Treasurer's Salary	50
Treasurer's Expenses	25
Librarian's Expenses	50
Bond for Treasurer—2 years	20
Chairman Medico-Legal Defense Com- mittee—Salary	300
Chairman Medico-Legal Defense Com- mittee—Expense	200
Official Stenographer and Assistant	140
	\$2735

Moved and seconded that the Budget be referred to the House of Delegates with a recommendation for favorable action. Motion carried.

Bill of Daisy M. Hanson, Chairman of the Committee on Health and Public Instruction for Education among Women, amounting to \$57.86 was considered, and it was recommended that this bill be not allowed for the reason that no appropriation was made for this Committee.

Claim of P. J. Flynn, former Councilor from the Tenth District was presented. A motion prevailed that this claim be not allowed because not properly itemized, as required by the By-laws.

Motion prevailed that the Councilors recommend to the House of Delegates that a vote of thanks be extended to the officers of this Association for their efficiency in conducting the affairs of the Association during the past year.

On motion it was recommended that the House of Delegates extend to the management of the Fontenelle Hotel a vote of thanks for their courtesies to the members of this Association during this Convention.

Upon motion the Council adjourned at the call of the President.

I. H. DILLON, Secretary.

BOARD OF COUNCILORS—FOURTH SESSION.

Omaha, Nebraska, Thursday, May 25, 1916.

The Board of Councilors convened, following the adjournment of the House of Delegates, President Moore presiding.

Present: Drs. Moore, Stark, Stewart, Curtis, Lehnhoff, Gilligan, and Secretary Dillon.

There being no further business to come before the Council, it was moved to adjourn sine die. Motion seconded and carried.

I. H. DILLON, Secretary.

Omaha, Nebraska, Thursday, May 25, 1916.

The new Council was called to order by President Moore. It was moved and seconded that M. S. Moore be elected temporary chairman. Motion carried. It was moved and seconded that I. H. Dillon be elected temporary secretary. Motion carried.

It was moved, seconded and carried that M. S. Moore be elected President of the Council for the ensuing year.

It was moved, seconded and carried that I. H.

Dillon be elected Secretary of the Council for the ensuing year.

It was moved and seconded that the Council adjourn, subject to the call of the President. Motion carried, and Council adjourned.

I. H. DILLON, Secretary.

House of Delegates, 1916.

The following members of the House of Delegates registered:

ADAMS—1. W. L. Sucha, Hastings.	HALL—1. L. Phelan, Grand Island.
BOONE—0.	HAMILTON—1. Donald B. Steenberg, Aurora.
BROWN—0.	HARLAN—1. A. J. Gardner, Orleans.
BOX BUTTE—1. H. A. Copsey, Alliance.	HOLT—1. W. J. Douglas, Atkinson.
BOYD—0.	HOWARD—1. F. S. Nichol森, St. Paul.
BURT—1. S. A. Swenson, Oakland.	JEFFERSON—0.
BUFFALO—1. L. M. Stearns, Kearney.	JOHNSON—1. M. Stewart, Tecumseh.
BUTLER—0.	KEARNEY—0.
CASS—0.	KNOX—1. F. H. Kucera, Verdigre.
CEDAR—1. L. Stark, Hartington.	LANCASTER—2. J. J. Hompes, Lincoln.
CHASE-DUNDY- HAYES-HITCHCOCK —1. L. B. Swaggart, Trénton.	E. S. Wenger, Lincoln.
CHERRY—0.	LINCOLN—0.
CHEYENNE—1. H. E. Mantor, Sidney.	MADISON—1. Frank Jensen, Newman Grove.
CLAY—1. F. A. Butler, Harvard.	MERRICK—1. Wm. Arrasmith, Palmer.
COLFAX—0.	NANCE—1. F. W. Johnson, Fullerton.
CUMMING—0.	NEMAHA—1. C. A. Brown, Brownville.
CUSTER—0. F. A. Burnham, Arnold	NUCKOLLS—1. F. G. Saville, Ruskin.
DAWES—0.	OTOE—0.
DAWSON—1. J. H. Fochtman, Cozad.	PAWNEE—1. E. B. Brooks, Pawnee City.
DIXON—0.	PHELPS—1. S. F. Sanders, Holdrege.
DOUGLAS—5. Roy A. Dodge, Omaha.	PIERCE—1. G. B. Desparois, Pierce.
A. F. Tyler, Omaha.	PLATTE—1. W. S. Evans, Columbus
I .S. Cutter, Omaha.	POLK—1. D. J. Smith, Osceola.
E. L. DeLanney, Omaha.	BROWN—0.
Wm. N. Anderson, Omaha.	
DODGE—1. S. A. Preston, Fremont.	
FRANKLIN—0.	
FILLMORE—1. A. B. Stratton, Exeter.	
FURNAS—1. J. M. Willis, Arapahoe.	
GAGE—1. C. P. Fall, Beatrice.	

RED WILLOW—0.	H. J. Newell,
RICHARDSON—1.	Alexandria.
R. W. Foutz, Dawson.	THURSTON-DAKOTA
SALINE—1.	—1.
Porter F. Dodson,	C. H. Maxwell,
Wilber.	Dakota City.
SAUNDERS—1.	VALLEY—0.
E. O. Webber, Wahoo.	WASHINGTON—1.
SCOTTS BLUFF—1.	L. L. Burstien, Blair.
A. M. Faught,	WAYNE—1.
Scottsbluff.	E. B. Erskine, Wayne.
SEWARD—0.	WEBSTER—0.
SHERMAN—0.	YORK—1.
STANTON—0.	J. C. McKinley, York.
THAYER—1.	

Report of Necrology Committee.

We may be thankful that the past year has seen but few members of our Association called from our ranks to the Great Beyond.

Whereas, This society learns with profound regret and deepest sorrow of the death of the following of our brother practitioners and friends:

1. Dr. R. C. Moore.
2. Dr. W. H. Pruner.
3. Dr. R. S. Grimes.
4. Dr. George McCoy.
5. Dr. Susan Picotte.
6. Dr. L. R. Craig.
7. Dr. R. A. Grigsby.
8. Dr. M. Propst.
9. Dr. Sidney Eastman.
10. Dr. Mary Strong.

Members of the Nebraska State Association; and

Whereas, Their absence will be an irreparable loss to their families and friends, and to this Society on account of their inspiration and distinguished service, Be It Therefore

Resolved, That the remembrance of their connection with this Society shall be an additional bond of fellowship to those who survive; and

Be It Further Resolved, That this Society extend to the bereaved families our most sincere sympathy in this, our mutual loss and affliction, and that a copy of our official publication, with these resolutions printed on the Memorial Page, be sent to the family of each of the deceased, and that these Resolutions be spread upon the minutes of the Society.

Committee on Memorials, Council of Nebraska State Medical Association,
M. S. Moore, President.
I. H. Dillon, Secretary.

Committee on Publication, Report.

All papers that were read at our last annual meeting and submitted to us, have been published in the Western Medical Review during the past year.

Your attention is called to Chapter 8, Section 4, Page 21 of our Constitution and By-Laws defining the functions of this committee as follows:

"The Committee on Publication shall consist of three members, of which the Recording Secretary shall be one and Chairman, and shall have referred to it all reports on scientific subjects, and all scientific papers and discussions heard before the Association. It shall be empowered to curtail or abstract papers and discussions, and any paper referred to it which may not be suitable for publication in the Transactions may be returned to the author. The Committee shall have authority to arrange for the publication and distribution of the Transactions after receiving competitive bids, and shall use diligence in getting them into the hands of the members."

Activity by this Committee during, and immediately subsequent to our annual meeting, would correlate and magnify many important facts brought out in the discussion of papers. Also by advising just how much of any discussion shall be printed, they can make our Transactions interesting reports, and valuable information to our reading members desiring helpful hints for their daily practice. Many times men who are not in the "lime light" of debate, make splendid observations on the care and treatment of a sick patient, that do not get into print, because the author would not submit his suggestions in a condensed written form. Alertness intelligently at work by the members of this committee would lend valuable help to the Editorial department of our official Journal and enlarge its vision of legitimate medicine.

Your committee calls attention to the fact that our contract with the Western Medical

Review Publication Co. as our official Journal, expires with this annual meeting.

Respectfully submitted,

Joseph M. Aikin, Chairman.

Andres P. Overgaard,

I. H. Dillon,

Committee on Publication.

1916 Board of Censors Report.

Your Committee did not have a formal meeting during the year. One of us saw the Secretary of the American Medical Association at Omaha in October, 1915, and he agreed, provided we furnish him with copies of the Western Medical Review, to submit them to the Secretary of the Council of Pharmacy and Chemistry A. M. A. with the request that he mark all advertisements in the Review, which are not admitted to the advertising pages of the Journal of the American Medical Association. In November we received a personal letter from Dr. Puckner, in which he kindly named the advertisements in the Review, which would have to be omitted from its pages, to make the Review acceptable to the A. M. A. as a Journal, representative of, and acceptable as a State Journal of the Nebraska State Medical Association. We have made progress, but hope to present a better report at our next annual meeting.

Joseph M. Aikin, Chairman.

W. P. Wherry,

A. S. von Mansfelde.

Report of Committee on Health and Public Instruction for Education Among Women, Nebraska State Medical Association.

1915-1916.

Our committee was very enthusiastic about Health Education work, but not especially familiar with the methods and workings of the Women's Clubs. So we thought we could work best where our enthusiasm was greatest, and have tried to push the general health work whenever we could, without particularly confining our efforts to women. We maintain that both men and women have Cancer, Tuberculosis and Typhoid, and that most of the Health Instruction is better given in common.

Our Committee has not been very independent about its work either, but has asked other committees, other doctors, other clubs,

and outside workers to help. We have called on our State President especially often, and we want to thank Dr. Rowe for the advice, encouragement, newspaper articles, financial help, and manual labor he has given us so patiently during the year.

We firmly believe that the health education of the people should come directly from the medical profession. First, through a National Department at Washington, then through the State and County Medical Societies. The doctors of a community are probably not, as a class its best authorities on questions of Capital and Labor, Supply and Demand, etc. But they do understand its health problems best, and can give the best help in improving the health of the community. When the people trust uncensored newspaper and magazine articles for health information, they waste time, money, and lives on patent medicines, cancer quacks, Friedman Tuberculosis cures, and Twilight Sleep. This Public Health Movement means lots of extra work and sacrifice for a class of people who are already very much overworked and often underpaid. But each of us owes some work for the general good to the community in which we live. And this seems to be the much needed work for which the doctors are specially fitted.

Our committee began the year's work with a "Health Exhibit" at the State Fair grounds last fall. We tried to feature especially Tuberculosis, Cancer, Social Hygiene, and Child Welfare in this first exhibit. Our material included a good many charts, with pictures or cartoons to call attention to a few short sentences of information about the disease. Also pathological specimens, both animal and human, microscopic mounts of the common pathogenic bacteria, orthopedic braces and casts, and a lighted rack of X-Ray plates. We had also secured some lantern slides from the Dept. of Agriculture at Washington, D. C., a good lantern, and a group of interesting speakers for each day. But though the exhibit was generally crowded, the people seemed interested, and many of them expressed hearty approval, they could not be persuaded to sit down and listen to a talk. The cost of the whole thing was about \$57.86.

If the Association cares to make this State Fair "Health Exhibit" a permanent thing, it can be managed more easily, made more extensive and interesting, and perhaps less expensive another year. For instance, the two large signs "Health Exhibit, by Nebraska State Medical Association," (cost \$8), the rack for X-ray plates, (cost \$6.90), and about thirty charts, (cost \$5), are still on hand and could be used again.

The idea of educating through exhibits rather than through lectures seems to be gaining in popularity. The La "Health Train" is one of the oldest examples. New York and Indiana both have extensive public health exhibits, under the State Board of Health. Oregon and Washington are making a great campaign for Social Hygiene with permanent exhibits. Kansas is doing splendid work along health lines through her committee on Health and Public Instruction. They, however, are working through lecture bureaus, newspaper articles, and bulletins rather than exhibits. The Kansas State Society allows the committee \$40 to \$100 per year, and this year they used it in publishing a very excellent Cancer Bulletin.

The Committee has sent out typewritten letters to the Secretary of each County Society in the state, about 60 in all, asking them to help in the Health Education work in their section of the state, and offering to supply information, newspaper articles, charts, etc., if desired. Not a single reply has been received. Can't we, at this meeting, get the names and addresses of doctors from over the state who will help to push the health work in their home communities? Other parts of the state need to reduce their mortality from Cancer, Tuberculosis, and Summer Complaint, as well as Omaha and Lincoln.

Our next undertaking was the observance of Tuberculosis Week in Lincoln. The Traction Co., Newspapers, Factories, Men's and Women's Clubs, Churches and Insurance Societies, all co-operated heartily. But the Moving Picture men disappointed us by promising much and doing little.

The committee also helped the Woman's Club of Lincoln in the observance of "Baby Week." Part of our State Fair Exhibit was used again, several of the doctors gave talks,

and other kept a series of about ten suitable articles running in each of the daily papers. By the help of a Woman's Club friend, we have put an Emergency Supply Box in our North Side German-Russian settlement in Lincoln. The materials are to be loaned to the people of the neighborhood, teachers, settlement workers, and doctors, when needed, with the understanding that they are to be promptly replaced. We are also co-operating with the Woman's Club in loaning their municipal cradle and layette where needed, then sterilizing them before the next application comes in. Members of our Committee and other doctors interested in public health work, have given several talks before Women's clubs, Church societies and Schools during the year.

Our Committee's last work for the year has been the starting of a Cancer campaign in Lincoln. Regular newspaper articles are planned on different phases of the subject, for each month during the summer. These are to be followed by a public Cancer program in the early fall. The A. M. A. has promised us a noted speaker from the east for this meeting, and our May articles have already appeared in the papers. So we feel that our campaign is well under way.

During the year several things have come to light as possible ways for next year's committee to carry on the work. (1) Can't we arrange that our noted Cancer or other speaker shall give one popular talk to the people, and one more technical talk to the local Medical Society in each of eight or more towns when he gets to Nebraska? This would save him time, and would give all a good program at small expense, for then we could divide up on his traveling expenses. (2) Our State University Extension Department is holding "Farmers' Institutes" in the smaller towns over the state, which are largely attended by farmers and their families. This is the class of people hardest for us to reach by public meetings, lectures, and newspaper articles. And in our farming state, it's a large and valuable class, too. The Extension Department is willing to present charts and literature on Cancer, Tuberculosis, Child Welfare, etc., at these Farmers' Institutes if we will supply them. Can't we pub-

lish a pamphlet similar to the "Cancer Bulletin" issued by the Kansas State Medical Society, and put it in the hands of this University Extension Department? (3) Do you want to make the Health Exhibit a yearly feature at the State Fair? (4) Can't we improve the health of our Nebraska babies faster by changing our State Fair "Baby Health Contest" into "Health Conferences?" It is not so important to prove fine shades of difference between almost perfect babies, as to improve the imperfect ones. Why can't we encourage the parents of frail and ailing babies to bring their children to the Fair this year? Then provide some noted specialist on Children's Diseases who would give the parents of each child a 5 to 15 minute conference on the best way to improve his condition? Dr. Margaret Clarke, of Iowa, originator of the Better Babies movement, was giving such conferences at San Francisco last year, and parents were asking very eagerly about their particular problems in raising babies.

(Signed)

Daisy M. Hansen, Lincoln.

Rachel M. Cooper, Aurora.

Report of the Medico-Legal Defense Committee.

During the year 20 physicians came to your Committee for advice and assistance.

Four of them were eliminated for want of jurisdiction. Two are in the preliminary stages of litigation.

One was tried and the jury disagreed and now a new trial is likely to be the outcome. Six were tried to the jury, and one was dismissed by the court before the case came to the jury; of the six two lost their case with a judgment of two thousand dollars against them; one with a judgment of one thousand and sixty-five dollar against him, which was finally settled for almost nothing by the plaintiff, to avoid appeal to the Supreme Court. The first two have appealed to the Supreme Court and the case is called for the July sitting of that Court. We feel that these latter cases would not have been lost in the district court, if the attorneys had only tried to do their duty by their clients

and by us. Their defense barely provided for an appeal to the Supreme Court. Both defendants and lawyers, in some instances, seem to value our service very lightly.

Three of those sued came out of their ordeal with flying colors and two of them evinced their satisfaction by grateful thanks and appreciation of the Committee's services.

The cases of three physicians were settled out of court. In one case the defendant acknowledged that he had inadvertently fractured the law and he preferred to pay for his mistake. The other two, with more than a fighting chance, settled, because one of them wanted the matter out of the way for personal and professional reasons. He also acknowledged the assistance of the Committee and its attorney.

The cases of three physicians are on the dockets of the courts to be tried this very week, two of which your committee will attend, and one of them, we regret, we are unable to be of any service to because the defendant, for reasons inexplicable to us, does not respond to our repeatedly offered assistance and services in the trial.

The remainder of the cases are undergoing the slow processes of the courts and we are unable to predict the time of their trial or their outcome.

Taking the cases as a whole the results have been all that could be expected to put the work on the highest claims of your endorsement. It is certainly a fact that with the small outlay the Association could not possibly gain greater satisfaction than from this phase of its many undertakings. There is not one word of objection from the 26 or more states, as far as we know, which have adopted the Medical Defense to this labor of brotherly love, and no state would even dream of discarding this defense of its members against unjust damage suits.

There has been expended by us, during the year, of an appropriation of two hundred dollars for expenses, the sum of one hundred and sixty dollars and fifty-eight cents (\$160.58); and of this sum, ninety dollars were paid for incidental attorneys' fees, and twenty dollars for the printing of necessary blanks required by the new By-law, adopted at our last session, i. e., a full report of each

case by the defendant; and, a subsequent report from the county society's committee, which is required to investigate the case and make its recommendations to the Medico-Legal Defense Committee. By this By-Law's demands, in each case, there is at once an interest created, at least in three members of the County Society, in the cause of their brother physician, and it has proven a valuable help to the defendants and their defenders.

During the year your Committee has earnestly tried to find bonding or indemnity companies which will guarantee:

Absolute reliance that they will make good any and all their promises to their policy holders: First: their financial ability and their readiness to promptly pay a judgment against a defendant doctor; that they will try the cases with all the legitimate weapons their attorneys and your Committee stand ready to furnish; that they will not compromise a case with the plaintiff without the consent of the defendant and your Defense Committee; that the attorneys whom they employ must be competent, and so much so, that they will be acceptable to the defendant and your Committee and its attorney, and that all must work together, with due regard to the legal and medico-legal aspects of the case.

We have been able, so far, to find only one Company which agreed to let your Committee have a deciding voice in the conduct of the cases, medically speaking, and your Committee is sometimes, even with very little grace, permitted to sit by and see our brother physicians handled as the Company's attorney sees fit. So discouraging has this feature of indemnity defense been that your Committee was finally compelled to draw into its services a competent attorney, who for the love of medico-legal practice, is preparing himself to be a specialist in such work, and he certainly is making good. He has already saved the Association more money than he likely to demand for some time to come for his own services; and your Committee is saved the uncertainty in any case of mistakes of omission and commission which are likely to turn out costly errors in law courts.

Another question comes to the front at this time, the demand of members that the De-

fense Committee enter cases when the doctor sues for his fees for services rendered, in the lower courts (Justice of the Peace or County Courts); and especially when threat is made of a counterclaim for damages by the defendant debtor. Your Committee fully realizes the justice of these claims and the value to them in the future defense of the suing physician in the damage suit brought against him.

We respectfully request that the Association take this question under advisement, and order what seems best to do under the circumstances.

Your Committee would hail such expansion of their duties with delight. So far it seems to us that the Committee would not use its powers, and the small means at its command, in the spirit which actuated the Association in the creation of the Defense Fund. The small sum of One Dollar from each member, in the face of increasing number of malpractice suits, will barely suffice to take care of such suits as leave no doubt on the mind of the Committee that they are brought to ruin, professionally and financially, physicians who are guilty of no offense against the highest welfare of their patients, i. e., have given them the best that is in them of knowledge, time and service, and for which they and their fellows have no cause for regret.

We think we should continue in this course, until the Association enlarges our sphere of usefulness by a supply of greater funds.

Medico-Legal Defense Committee.

A. S. von Mansfelde, Chairman.

Joseph. M. Aikin, Secretary.

Report of Committee on the Care and Prevention of Contagious Diseases.

To the Hon. House of Delegates, Nebraska State Medical Association:

Your Committee beg leave to submit the following report:

Out of every sixteen deaths in this country, six on the average are due to communicable disease and, hence, within the realm of prevention. Upon the foundation so well laid by the great Pasteur, in fifty years science has discovered methods for the prevention of the great epidemics, such as Plague, Yellow Fever, Cholera, Malaria and Hookworm. To

succeed even approximately with the more usual contagious like Typhoid Fever, Tuberculosis and the exanthems, will require not alone a knowledge of the natural history of these maladies, much of which we already possess, but in addition a very different line of effort; namely the putting of these ascertained facts effectively before the laity. Most of all must we strive for their acceptance of these facts and their cooperation, otherwise success will be next to impossible.

How best to accomplish this purpose may well engage our best efforts. Thus far our own state, Nebraska, compared to those states east of the Mississippi has accomplished very little. Our public health meetings reported through the press are but a beginning. The book of health rules, and the bulletins from our state Board of Health are well prepared but quite limited in the number they reach.

The booth supported by the State Society at the state fair made a good though slight impression upon some thousands who came in groups, half dozens perhaps, at a time. None would stay or return to formal lecture at a stated hour, so none were given. In the evening the building was deserted. Tuberculosis and cancer specimens, with pictures were displayed, giving subject matter for questions and talks. On the whole the effort seemed to be of considerable value.

By far the most interesting work along educational lines has been through health committees of the Women's clubs of the state at their various district meetings. Board of Health members and others have participated upon invitation. Good thorough efforts find here an appreciative audience, and the hearer is capable of further propaganda in her own sphere of influence. In no other field could the medical man expect to accomplish more. So closely allied is the subject of Child Conservation, that the medical man may no doubt see great opportunities to expound before various gatherings, in the next few years what he may know of the laws of physical well-being. Your committee believes we should seek such opportunities and make them as valuable as possible in the great campaign before us.

At the Conference on Tuberculosis at Indianapolis in October, the chief idea one brought away was the value in this educational campaign of the public health nurse. Over and over again some well-fitted and tactful woman was upon the rostrum to tell how such and such a city or country district in southern Illinois or Kentucky or South Carolina had been won over to intelligent and vigorous health work in public health. Possibly a survey had been made to give point to subsequent effort. No doubt a tactful well-equipped health nurse can succeed, without arousing the prejudices possible in like efforts by a medical man. The state of Ohio is reported to employ nearly four hundred such in a population of some four million people, in both city and country districts.

It has been intimated that the well-to-do in some of our Nebraska communities consider themselves above quarantine law which they are willing their neighbor should obey. While we must be bread-winners we can ill afford to assume any uncertain attitude in such cases.

More and more we are coming to give prominence to "Carriers" as the chief factor in the communication of disease. Less and less important do we consider a third person, clothing or fomites in general.

In Typhoid, especially in the smaller community we must often look for a carrier, not himself ill, as the frequent source of contagion.

In Diphtheria, of possibly the nasal case, without constitutional symptoms, and so the more readily becoming the distributor of the bacillus.

In Tuberculosis, we look for an open discharging infection, at any point, continued contact with which person, will infect the susceptible, especially the young.

In Scarlatina, similarly, an unhealed local infection, containing after constitutional symptoms have subsided, which may not of itself confine the patient.

In none of these instances is isolation during febrile stage of the infection sufficient. Only careful scrutiny can determine when it ceases to be essential.

Our recent epidemic has been unusual compared with preceding ones. It has been more general, more fatal, and affected a greater proportion of adolescents and adults.

In a study of the bacteriology of this epidemic Dr. M. G. Wohl Pathologist at the Nicholas Senn hospital in this city has recognized only a form of streptococcus such as is usually associated with this disease, in a form possibly quite as virulent as usual.

The same type of organism, as we understand, has been associated also with many cases that had every appearance of Influenza or Grippe. Differential diagnosis has at times proved difficult. Isolation should be practiced in either case. With thorough medical inspection in the schools we have a method of control very essential in the handling of such an epidemic.

Respectfully submitted,
S. R. Towne, Chairman.

Committee on Care and Prevention of Contagious Diseases.

Report of Committee on Public Policy and Legislation.

Mr. President and Members of the House of Delegates:

Your committee begs leave to report as follows: The year now closing, since your last meeting, as you are all aware, has been one free from legislative session, hence, free from legislative turmoil for your committee, and others, it may therefore be said to have been one of ease and comparative inactivity on the part of the committee consequently we come without thrilling account of the death grapple with vicious legislation or the pleasurable narration of wholesome laws enacted.

It will be recalled by your honorable body that at the 1915 session your Committee on Public Policy and Legislation closed its report by recommending the appointment of a special committee to take under advisement and consideration the matter of the handling, past, present and future of our legislative matters and after a full hearing to report back to the House of Delegates. The recommendations, with some modification, were adopted and a committee selected. In Feb-

ruary of this year the special committee held a meeting in the city of Lincoln and it was our privilege to appear before the committee and do what we could to assist by giving such information as was in our possession or at our command. During the year nothing special of a public policy nature requiring the active service of your committee has been called to its attention but our consideration has been directed to a subject, that we regard as public policy, which we deem of greater magnitude, because of its far reaching and vital importance to the people of this state, than any which your committee has been called upon to deal with in a length of time. It is the subject relating to the laws providing for and governing our State Board of Health and its various activities pertaining to the public health service. It is not within the scope of this report nor is it the time or place to take up and analyze and give a critical report on the laws, organization and activities of the health department of the state, but will say in passing that they, no doubt, reflect the idea and spirit of the times in which they were enacted and notwithstanding much adverse criticism, have been of great value to the state, but time has so changed conditions that it is now generally conceded that Nebraska health laws and organization are quite inadequate to give the state a workable modern public health service such as it should have.

Governor Morehead seems to have been so convinced of the needs of some radical changes for the betterment of the state health department that he took the subject up with the Public Health Service at Washington and asked that the department send some one to Nebraska to study the situation and make recommendations. In compliance with that request the department sent Dr. Carrol Fox to Lincoln the latter part of the winter and the doctor put in two months, without expense to the state, in a careful study of the laws and health problems, not only of the state, but of some of our larger cities as well.

Your committee has here a tentative bill hastily drafted in conformity with Dr. Fox's findings and recommendations. It is our opin-

ion that if the proposed measure, with such dressing up or dressing down as it shall need, can be enacted into law at the next session of the legislature it will be possible for Nebraska to build up a splendid modern health service in the very near future, we, therefore file this bill with your secretary for your careful perusal and such prompt action as you may see fit to take.

The committee has not expended any of its allowance, for which it should probably be condemned, hence we have no other financial statement to make.

Respectfully submitted,
W. H. Wilson, Chairman.

Report of the Committee on Scientific Work of the Nebraska State Medical Association.

Your program committee met during the Elkhorn Valley Medical Society and decided that our Association had now reached the stage when it ought to have two sections and decided to try it out this year.

Accordingly Medicine, Eye, Ear, Nose and Throat were grouped under one section and Surgery, Gynecology, Obstetrics and Roentgenology under another section. We trust the arrangement will prove satisfactory.

In 1915 we found that in 54 papers presented thirty or 55 per cent were offered by Omaha members, eleven or 21 percent were from Lincoln and thirteen or 24 percent were from members in out-lying districts. In 1915 there were 970 members in all, 204 in Omaha or 21 percent, 78 in Lincoln or 8 percent and 689 in the rest of the state or 71 percent. This did not seem an equitable adjustment so we decided to limit the papers from Omaha and Lincoln and not accept any from there until we had made an attempt to get material from out in the state.

Accordingly invitations were sent out early and resulted in requests by a few, but as before, from the cities. We then thought that if time and place were given for case reports a few more might respond. But even this did not bring in enough material to make a skeleton of a program.

We accordingly met again in Omaha soon after the New Year and then decided upon a

few general titles for which we would write to representative men in all districts.

In one instance five physicians in different sections of the state were invited to write a paper on a definite subject. Three did not respond at all, two others refused and one finally had to be selected from the city.

And after all these trials and refusing admission of three or four titles from Omaha we find in 1916 in 58 papers 30 from Omaha or 52 percent, 14 from Lincoln or 24 percent, and 14 out in the state or 24 percent.

By comparison you will see that the rural districts presented exactly the same or 24 percent, Omaha diminished from 55 percent to 52 percent and Lincoln increased from 21 percent to 24 percent.

We offer these figures in the hope of stimulating you to increased effort in the future to make our Association Meeting more general and practical than before.

Your State Secretary paid from his own pocket in paying for the entertainment of the Committee \$7.50 on the occasion of the meeting in Omaha. It seems fitting that we should recommend a small fund set aside for expenses of the committee in the preliminary steps in arranging the program, all of which takes considerable time and expense.

If the arrangement of sections as presented this year seems feasible we would recommend that your committee consist of but four, (a chairman of each section on Medicine and Surgery with a Secretary selected for the subdivisions in the Specialties included under each). Efficiency would be better obtained by this means.

Inasmuch as all copy of this year's program came in to the Secretary within the last two weeks before publication we apologize for a few omissions and errors and would recommend that a date be fixed such as February 1st of each year when all material must be at hand and no favors granted thereafter.

Respectfully submitted,
Joseph M. Aikin, Chairman.
E. T. Manning,
Wm. N. Anderson,
H. W. Orr,
J. J. Hompes,
B. R. McGrath,
Committee on Scientific Work.

THE NEBRASKA STATE MEDICAL JOURNAL

Irving S. Cutter, Editor.....Omaha
J. M. Aikin, Business Manager.....Omaha
Room 468 Brandeis Building.

Publication Board.

F. A. Long.....Madison
W. O. Bridges.....Omaha
B. F. Bailey.....Lincoln
J. M. Aikin, Ex-Officio.....Omaha

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YOUR OWN JOURNAL.

The dream of many years has been realized and the Nebraska State Medical Association's own Journal is before you for approval. It is your own Journal—established by the House of Delegates at the Annual Meeting at Omaha in May 1916—and if it does not meet your expectations you must help to improve it. If the Journal does not reach and maintain a very high standard it will be your own fault as much as of the Journal Committee, the Editor and the Business Manager.

The arrangements made by the Journal Committee for the current year are: Dr. Irving S. Cutter of Omaha will be the Editor; the Secretary of the Association, Dr. J. M. Aikin, Omaha, will be Business Manager, and the Huse Publishing Co., Norfolk, will publish the Journal.

Probably no state owned journal has ever been established with as good initial financial prospects of success and with the universal good wishes of the membership as the Nebraska State Medical Journal, and the Journal Committee entertains the hope that the Journal will at once take its place in the front ranks of state medical journalism.

F. A. Long, Chairman,
(Madison.)

The Nebraska State Medical Journal comes into existence largely through a demand for a more coherent medical profession in Nebraska. In 1914 at the State Medical Meeting, a committee was appointed to report on the feasibility of the State Medical Association establishing its own Journal. This Committee consisted of Drs. F. A. Long, Madison;

W. O. Bridges, Omaha and B. F. Bailey of Lincoln. The Committee investigated the proposition with great thoroughness, going into detail on ways and means, financial obligations and the like. The report of the Committee at the 1916 meeting was favorable to the establishment of such a Journal, and the Association through its house of delegates authorized this Committee with the addition of the Secretary of the State Society, Dr. J. M. Aikin, ex officio, to establish and operate an official Journal. This Board met and organized on the last day of the meeting of the State Association and selected the Huse Publishing Company of Norfolk as official printers for the Journal.

The official Journal of the State Medical Association comes before the physicians of the state with considerable confidence that it will be able to fill a long felt want. We are sure that the Journal will receive the united cooperation of the physicians of the state and that a policy of vigorous activity in the furtherance of the medical profession will prevail. No middle western state has greater medical possibilities than Nebraska. The policy of the Journal will be distinctly that of supporting all activities calculated to improve the condition of the medical profession, medical practice and public health activities. The Journal through its connection with the State Society must of necessity be fearless in its attitude and persistent in its demands on all medical questions.

Every physician of the state should read with great care the presidential address of Dr. E. W. Rowe which is published in this issue. Dr. Rowe has spent a large amount of time investigating public health matters and his address sounds the keynote of progress for Nebraska.

COMMUNICATIONS.

Communications addressed to the Journal will be included, if space permits, without charge. Reports of cases, comments on treatment and matters of general medical interest will receive careful attention.

The business policy of The Nebraska State Medical Journal will be just dealings with firms whose goods are advertised. No advertisement of a preparation suitable for analysis by the Council on Pharmacy and Chemistry of the American Medical Association will be accepted until the endorsement of the Council is guaranteed. All other proffered advertisements must have the approval of the entire Board of Censors of the Nebraska State Medical Association.

Published rates for space will be adhered to strictly. Paid, exchange, and advertisers lists of subscribers, will be accurately published as occasion may demand, and advertisers on request may inspect the mailing list. The Journal desires to introduce you to the merchants whose goods are advertised and ask that you become their patrons.

The twentieth anniversary meeting of the Elkhorn Valley Medical Society will be held at Norfolk, Neb., Aug. 3, 1916, at 1 p. m. Big program.

A picnic will be served at 6 p. m. at the Country Club.

E. L. Brush, Pres.; A. P. Overgaard, Sec.

Report of the Chairman of the Fee-Splitting Committee to the House of Delegates.

The fee-splitting committee would respectfully report having accomplished nothing definite so far. We have not been able to get any direct evidence of infractions of the society rule on this point, and the attempts to find a reliable detective for this work have hitherto failed. There would be no difficulty in obtaining professional detectives who would undertake the work and would doubtless procure evidence, but the prejudice against the use of professionals is such that it has been thought best not to employ them.

The committee would welcome any suggestions and advice as to a more efficient policy, and the chairman in particular wishes to submit his resignation in favor of someone who can give more efficient services in the matter.

Respectfully submitted,
H. Gifford, Chairman.
M. L. Hildreth,
D. T. Quigley,
H. W. Orr.

Report of Auditing Committee.

The Auditing Committee after careful check of the books of the Secretary and Treasurer beg leave to report balance in general fund of \$1,711.50 and in the Defense Fund of \$2,265.66 and believe both secretary and treasurer should be commended for their diligence in the performance of their duties.

Respectfully submitted,
W. J. Douglas, Chairman.
H. E. Mantor,
W. S. Evans,
Earl B. Brooks,
Roy A. Dodge,
Auditing Committee.

REPORT OF TREASURER.

From January 1st, 1915, to December 31st, 1915.

Jan. 1st, 1915, by balance on hand	\$ 290.55
Dec. 31st, 1915, by dues 971 members	1942.00
Dec. 31st, to arrears member	2.00
May 27th, expense money returned Secy. Aikin	11.59
May 27th, expense money returned Treasurer Mansfelde	4.30
May 27th, expense Com. on Publicity returned	25.00
July 30th, Dr. Stewart returned money not accepted	17.50

Whole amount received	\$2292.94
All money expended during the year and proper vouchers herewith for same Nos. 240 to 262 inc.	\$2041.04

Leaving a balance of	\$ 251.90
January 1st, 1916, to May 20th, 1916.	
By dues from 987 members	1974.00

Whole amount received	\$2225.90
All money expended during this period and proper vouchers therefore	
Nos. 263 to 267 inc.	518.40

Amount on hand May 20th, 1916	\$1707.50
By error	4.00

Balance in General Fund	\$1711.50
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Report on Defense Fund.

January 1st, 1915, to December 31st, 1915.	
Balance on hand Jan. 1st, 1915	\$ 858.05

Membership dues of 971 members.....	971.00
Money returned from Chairmans ex- pence acct.	122.61
Whole amount received.....	\$1951.66
Amount of money expended to De- cember 31st, 1915, as per vouchers herewith Nos. 12 to 15.....	675.00
Balance on hand January 1st, 1916.....	\$1276.66
January 1st to May 20th, 1916.	
All monies received from 987 mem- bers	987.00
All monies received from arrears.....	2.00
	989.00
All monies on hand May 20th, 1916	\$2265.66
A. S. von Mansfelde, Treasurer.	

Report of Special Committee on Public Policy
and Legislation.

On March 15, 1916, a meeting of the committee was held at the Lindell Hotel at Lincoln. The meeting was called to order by Dr. C. P. Fall, chairman of the committee. Dr. H. H. Waite was made secretary of the committee. After a brief explanation of the purpose of the meeting Dr. Fall asked Dr. Carroll Fox of the U. S. Public Health Service to outline and explain the purpose and scope of the Public Health survey of the state which he had just commenced. Dr. Fox outlined the plan which he intended to follow. He informed the committee that the results of the survey would be embodied in the report to be submitted to Dr. Rupert Blue, Surgeon General of the U. S. Public Health Service, with suggestions as to the necessary changes which should be made in the public health organization and administration in the state in order to place it on a more efficient basis.

The detailed report of this survey will appear in the Public Health Reports. The date of publication could not be definitely determined.

Dr. W. H. Wilson, chairman of the standing committee on Public Policy and Legislation, outlined the results which have been obtained by the Nebraska State Medical Asso-

ciation. Dr. E. W. Rowe, President of the Association, explained the object contemplated in the appointment of the special committee. The especial work of this committee is to aid the Committee on Public Policy and Legislation in securing the concerted action and influence of the profession at large in the interest of progressive legislation.

The following motions were then carried unanimously:

1. A motion by Dr. C. L. Mullins, seconded by Dr. I. H. Dillon:

“That the State Association continue to exercise its influence on public policy and legislation through its standing committee as at present constituted.”

2. A motion by Dr. I. H. Dillon, seconded by Dr. C. L. Mullins:

“That the secretary be instructed to prepare a report to the State Association embodying the motion just passed.”

3. A motion by Dr. I. H. Dillon, seconded by Dr. C. L. Mullins:

“That the committee adjourn to meet in Omaha on Monday, May 22, 1916.”

H. H. Waite, Secy.

Report of Special Committee on Public Policy
and Legislation.

Pursuant to adjournment, the Committee on Public Policy and Legislation met at the Fontenelle Hotel, in Omaha, on May 22, 1916, and adopted the following report:

We, your Special Committee on Public Policy and Legislation recommend that the work of the standing committee on Public Policy and Medical Legislation be approved. We further recommend that we continue to handle questions of medical legislation and public policy in the future thru this standing committee. We further recommend that each member of the Board of Councillors be made an auxiliary member of this committee, and that it be the duty of each councilor to visit each county medical society in his district either in person or by delegate, prior to September 1, 1916, and address them on the questions of medical legislation that are likely to arise at the coming session of the legislature, and that it be his further duty to make a written report to the chairman of this standing committee of the medical-politi-

cal conditions in each county as he finds them; that the existence of this auxiliary committee continue until the next annual meeting of the State Association.

Respectfully submitted,
C. P. Fall, Chairman,
H. H. Waite, Secretary,
A. P. Overgaard,
C. L. Mullins,
I. H. Dillon.

1916 Report of Secretary.

On the 31st of December, 1912, our membership was 884.

On the 31st of December, 1913, our membership was 1005.

On the 31st of December, 1914, our membership was 974.

On the 31st of December, 1915, our membership was 970.

Our paid up roster to May 20th, 1916, is 1003. In this number we include 67 members in six counties suspended for delinquency in their time of paying dues. At no previous time in our history have we had so many members paid up this early in the year. There are 1700 registrations in Nebraska under the Harrison Federal Law. Of this number 12 are Osteopaths. Our Councilors have been zealous and intelligent workers in our respective districts. Special commendation is due the President and Secretary of our Board of Councilors for their splendid support and promptness in corresponding with your State Secretary. Our County Secretaries, too, are appreciating the importance of their office by increasing activity among their members and in sending reports to the office of your State Secretary. Attention is called to one neglected phase of county secretary duties. I refer specifically to the reporting of names of new members and any change of residence from or to their respective counties. All such notices should indicate where the member has moved to, who leaves your county, and where the new resident was previously located. All this information should be sent directly to the office of your State Secretary. I recommend that your annual meetings for the election of officers be held in the early fall of the year just preceding the beginning of their term of office. Offi-

cers elected then can arrange for their duties to begin with the calendar and fiscal year of our county societies and State Association.

During the year ending December 31, 1915, your Secretary received, transmitted and holds receipts from our State Treasurer for \$2,917.00.

During 1916 to May 20th inclusive, we received, transmitted and hold our State Treasurer's receipts for \$2,967.00.

Respectfully submitted,
Joseph M. Aikin, Secretary.

DR. W. F. MILROY

President Nebraska State Medical Association.



Dr. William Forsyth Milroy was born in 1855. He graduated from Columbia University College of Physicians and Surgeons in 1882, and after serving internships in New York Maternity and in the Charity (now the City) Hospitals of New York he came directly to Omaha and began the practice of medicine. He has long been a familiar figure at state meetings and has shown great interest in the welfare of the society.

Examinations for Army Medical Corps.

Preliminary examinations for admission to the Army Medical Corps to fill more than 100

vacancies will be held July 17 and August 14. Applicants must be between 22 and 30 years of age, graduates of reputable medical colleges and must have had at least one year's experience as intern after graduation. Applicants successful in the preliminary examination to take a course of training at the Army Medical School, Washington, for eight months, during this time receiving the pay and allowance of a second lieutenant, which amounts to about \$215 a month. Before entering the school the candidate must agree, if commissioned, to serve at least five years in the Medical Corps. At the termination of the course at the school, he is assigned to duty at a military post. Medical officers are furnished with best of current medical periodicals, recent books, ample equipment for service and the laboratories at military posts are equipped for research work.

J. A. M. A.

Echoes of the Omaha Meeting.

The State Medical Association Meeting for this year will long be remembered as a success from the scientific side. Our attendance this year was much larger than any other year and those registered were truly representative.

We tried to make the stay of the ladies in our midst an especially enjoyable one through the untiring work and interest of our chairman, Mrs. J. E. Summers assisted by Mrs. C. A. Hull. We hope the ladies will want to be with us at the next Omaha meeting. The automobile ride about the city Tuesday afternoon followed by a tea dansant at the Fontenelle was made most interesting because of the efforts of the little girls to please the visitors. Prof. Chambers managed this part of the program which was given in the tea room while the ladies were served with refreshments. In the evening the ladies attended a box party at the Boyd Opera House and many of the physician's wives were well pleased with this feature. The next afternoon the ladies were invited for a short auto trip to the Omaha Field Club where they attended dinner at the invitation of Mrs. J. E. Summers after which they spent some time looking at the surroundings of this beautiful club. They all expressed a desire to repeat

this part of the program. The ladies attended the banquet in the evening. This was the concluding feature of the week.

The time of the visiting physicians was well filled with papers, but they had some time to play Wednesday night; A Get-together-Good-Time accompanied by smokes, a Dutch lunch and a mixed entertainment furnished the amusement. We are especially indebted to Miss Silver and Mrs. Beulah Dale Turner for their part in this program and we sincerely hope to have them with us another time.

The banquet, the following evening was graced by the presence of Dr. James Bryan Herrick of Chicago, whose exposition of "Clinical Studies of Angina Pectoris" was out of the abundance of wide experience and knowledge and was, therefore, well filled with practical teaching.

The greater part of the success of the social features are due to the untiring efforts of Dr. Fitzgibbons and Dr. Tyler, assisted by the genial President of the Douglas County Medical Society, Dr. C. A. Hull. In addition to this we desire to express our thanks to the Omaha Publicity Bureau headed by Victor Parrish, who came so ably to our assistance and helped us with many of the trying features of our work.

While we know that some of the details of the entertainment were not perfect, we do know that the convention ran smoothly and that everyone had a thoroughly good time. Each succeeding Omaha meeting we will endeavor to make your stay here so full of fun and interest that you will count the months until you come again.

(Signed),

The Local Committee of the Omaha-Douglas County Society.

Book Notices.

Handbook of Infant Feeding: By Lawrence T. Royster, M. D., St. Louis. C. V. Mosby Co., 1916, pp. 144. (Price \$1.25).

Present volume is a welcome addition to our literature for its author has reduced the question of proper infant feeding to its simplest possible terms and placed it on an intelligible basis for the general practitioner.

Digest of Comments on the Pharmacopoeia of the U. S. of American and on the National Formulary. For the calendar year ending December 31, 1914. By Martin I. Wilbert, Treasury Dept. U. S. Public Health Service, Washington, Government Printing Office 1916, pp. 516.

Chapters on the cardinal principles of Psychanalysis: By A. A. Brill, M. D., Ed. 2-393 pages (Price \$3.00). In this volume Dr. Brill gives all the Freud theories and their practical application based on many years of hard work and practical application. Has a chapter on psychoses and a very important one on psychopathology of everyday life.

The Medical Clinics of Chicago, 1916, Vol. 1, No. 5, W. B. Saunders Co., (Price \$8.00) per year.

Special article by Dr. James T. Case upon The Roentgenologic Aspects of Intestinal Stasis besides several other very valuable roentgen findings. These clinics report the findings of ten physicians conducted in four different institutions.

Reference Handbook of the Medical Sciences, edited by Thomas Lathrop Stedman, M. D., Wm. Wood & Co.

This work is well known as the standard work of reference of the medical profession and when completed will consist of eight octavo volumes, illustrated. The sixth volume has just been published this year.

A Manual of Surgical Anesthesia: By H. Bellamy Gardner. Honorary Anesthetist to the King George Hospital. Ed. 2, N. Y. William Wood & Co. 1916, pp. 220 (Price \$2.25). This anesthetic administration, anoxemia and asphyxia present in a condensed form all that is necessary for the anesthetist to know in order to be thoroughly competent and avoid mistakes. The chapters on inhalation anesthetics in common use are unusually clear.

Practical Medicine Series for 1916. Volume 1, General Medicine, edited by Frank Billings, M. D., Volume 2, General Surgery, edited by John B. Murphy, M. D.

Painless Childbirth, Eutocia and Nitrous Oxide Oxygen Analgesia: By Dr. Carl Henry Davis, Rush Medical College, Chicago, Forbes & Co., 1916, Price \$1.00.

This little book of 134 pages discusses the various methods to secure painless labor and gives a clear report on the experiences with nitrous oxide oxygen gas.

Changes in the Food Supply and their Relation to Nutrition: By Lafayette B. Mendel, New Haven, Yale University Press (\$0.50). This is a discussion of foodstuffs, the method of preservation and the relative value of the various elements in the diet, also the changes of food relative to the changing of social and industrial conditions.

The Treatment of Acute Infectious Diseases: By Frank Sherman Meara, M. D., N. Y. 1916, The McMillan Co., (Price \$3.50). This book will appeal to the general practitioner because of its reliable advice, secured with little reading.

NOTES.

Nebraska is to be congratulated upon the election of Dr. A. R. Mitchell of Lincoln to membership on the Board of Trustees of the A. M. A. The election of Dr. Mitchell was without opposition and comes as a reward for long and faithful service in the National House of Delegates.

Dr. Carl A. Meyer of Omaha has located at Newman Grove, Nebraska.

Dr. Charles Harms who served an internship at the Nebraska Methodist Hospital, Omaha, is now doing special work for the Union Pacific Railroad.

Dr. Max Emmert of Des Moines has located in Omaha and will be on the Dispensary Staff of the University of Nebraska College of Medicine.

Dr. A. A. Fricke and E. L. DeLanny of Omaha, have been called to the front.

Dr. I. W. Irvin of Auburn, Nebraska, and Dr. Robert Hurka of Verdon, Nebraska, are doing post graduate work in Chicago during the month of June.

Dr. S. H. Watson of Tucson, Arizona, has been visiting relatives and medical friends in Lincoln during the past week. Dr. Watson is the head of the Tucson Arizona Sanatorium. This is a large Tubercular Sanatorium which runs eight months of the year. During the months of summer it is closed.

Dr. W. F. Milroy read a paper before the

American Therapeutic Society at their meeting held in Detroit June 9th and 10th.

**Nebraska Registration at the American Medical Association.
Detroit, Michigan.**

June 12, 1916.

Allenburger, C. A., Columbus.
Baker, M. D., Tilden.
Crummer, Leroy, Omaha.
Curtis, W. L., Fairbury.
Davis, B. B., Omaha.
Dillon, I. H., Auburn.
Henske, J. A., Omaha.
Hompes, J. J., Lincoln.
Lemere, H. B., Omaha.
McClanahan, H. M., Omaha.
Jonas, A. F., Omaha.
Lord, J. P., Omaha.
Potts, J. B., Omaha.
Stokes, A. C., Omaha.
Wilson, S. S., Nebraska City.

June 13, 1916.

Aikin, J. M., Omaha.
Breuer, C. H., Lincoln.
Cooper, R. M., Aurora.
Emerson, C., Lincoln.
Gifford, H., Omaha.
Haslam, Geo., Fremont.
Hurka, R., Verdon.
Johnson, R. A., Omaha.
Knoder, A. R., Omaha.
Lehnhoff, H. J., Lincoln.
Lynch, A., Fairbury.
Lynch, Delia A., Omaha.
McGrath, B. R., Grand Island.
Milroy, W. F., Omaha.
Strong, J. A., Kearney.
Sutherland, J. L., Grand Island.
VanFleet, E. A., Omaha.
Wherry, W. P., Omaha.

June 14, 1916.

Fall, C. P., Beatrice.
Foster, R. H., Norfolk.
Mitchell, A. R., Lincoln.
Pilsbury, L. B., Lincoln.
Sloss, G. A., De Witt.
Johnson, A. A., Omaha.
Pilcher, J. D., Omaha.
Crowley, C. F., Omaha.

**University of Nebraska College of Medicine
Graduates and Internships Accepted.**

June, 1916.

William B. Aten, New York-Long Island College Hospital.

C. H. Bastron, Buffalo General Hosp., Buffalo, N. Y.

R. E. Curti, New York State Hospital of Brooklyn.

Paul J. Flory, Southern Pacific Hospital, San Francisco.

W. R. Galbreath, Presbyterian Hospital, Porto Rico.

L. E. Hanisch, Immanuel Hospital, Omaha, Nebraska.

G. W. Hoffmeister, Asst. to Dr. W. P. Wherry, Omaha, Nebraska.

Fred L. Horton, Brooklyn City Hospital, Brooklyn, N. Y.

E. R. Leonard, Methodist Hospital, Omaha, Nebraska.

J. L. Linn, Methodist Hospital, Omaha, Nebraska.

F. W. Niehaus, Clarkson Hospital, Omaha, Nebraska.

D. B. Park, Clarkson Hospital, Omaha, Nebraska.

W. K. Riley, Methodist Hospital, Omaha, Nebraska.

A. S. Rubnitz, Wise Hospital, Omaha, Nebraska.

William Shepherd, Methodist Hospital, Omaha, Nebraska.

C. A. Undine, Swedish Hospital, Minneapolis, Minn.

W. W. Walvoord, Wise Hospital, Omaha, Nebraska.

Ruth Warner, New England Hospital, Women & Children, Boston Massachusetts.

A. H. Webb, Immanuel Hospital, Omaha, Nebraska.

C. R. Fuller, D. & R. G. Hospital, Salida, Colorado.

The Cancer Committee has to report that they have added to their original number of three members, the names of

Dr. O. T. Shultz, Omaha, Neb., First District.

Dr. David Hilton, Lincoln, Neb., Second District.

Dr. Earl B. Brooks, Pawnee City, Neb., Third District.

Dr. J. D. Reid, Pilger, Neb., Fourth District.

Dr. G. H. Rathbun, Fremont, Neb., Fifth District.

Dr. Geo. P. Shidler, York, Neb., Sixth District.

Dr. R. C. Panter, Dorchester, Neb., Seventh District.

Dr. W. F. Douglas, Atkinson, Neb., Eighth District.

Dr. C. L. Mullins, Broken Bow, Neb., Ninth District.

Dr. Sherman J. Jones, Hastings, Neb., Tenth District.

Dr. H. E. Mantor, Sidney, Neb., Eleventh District.

Dr. R. P. Stoops, Mitchell, Neb., Twelfth District.

We have added to this committee, as laymen, the following names:

Dr. David Isaacs, Y. M. C. A., Omaha, Neb.

Mrs. J. M. Aikin, Y. W. C. A., Omaha, Neb.

Mr. Vic. Rosewater, 3525 Farnam St., Omaha, Neb.

Bishop Beecher, Hastings, Neb.

Mr. Wm. Watson, World Herald, Omaha, Neb.

Mr. E. A. Benson, 4651 Dodge, Omaha, Neb.

Rev. E. H. Jenks, 2548 Capt Ave., Omaha, Neb.

Mr. C. N. Dietz, 428 So. 38th St., Omaha, Neb.

The following addresses have been given: For the woman's club of Omaha by Dr. D. A. Foote. For the High School of Broken Bow by Dr. A. C. Stokes.

The national Cancer Committee promises that Mr. Hoffman, statistician of the Prudential Life Insurance Company will be in the state some time this summer and will make a public address at that time.

Articles have been published, written by Dr. D. A. Foote, unsigned and sent to the World Herald, The News, and The Bee in Omaha and about fifteen or eighteen other papers in the state which newspapers have published extracts from this article from time to time.

The intention of the committee is to make or to have made, addresses through the school system of Nebraska through the com-

ing year. These school systems to include the High Schools in the larger places, the Normal Schools and if possible, the State University.

The aim of the committee is to present to the people only those things that are absolutely known about cancer and are not speculated, and to teach that the early recognition of cancer is the most important part of its treatment.

Respectfully submitted,
A. C. Stokes, Chairman.
B. B. Davis,
D. A. Foote.

Report of the Secretary of the Board of Councilors.

The following is a summary of the individual councilor's reports:

	Members
First District	204
Second District	135
Third District	88
Fourth District	82
Fifth District	102
Sixth District	89
Seventh District	64
Eighth District	31
Ninth District	80
Tenth District	No report
Eleventh District	7
Twelfth District	11

It is the opinion of the Board of Councilors that the affairs of the Association are in excellent condition in every particular. As each year goes by we see greater harmony prevailing in the ranks of the profession, and an increasing amount of good-fellowship displayed by the members of the Association toward each other. At the present time the Board of Councilors has no notice of any county society in which there is friction, or from whose official actions any exceptions are being taken.

I. H. Dillon, Secretary.

Are We Neglecting the Baby?

At a recent meeting of prominent Pediatricians, ways and means of saving the baby were discussed.

Is the proper amount of thought given to the babe and its progress in life, by the gen-

eral practitioner, and if not, who is at fault? Is it the school?

In hopes of solving, in a measure these questions, the University of Nebraska Free Medical Dispensary has added to its departments, a milk station. All feeding cases that come to the attention of the Pediatrician are at once referred to the feeding clinic. This department is open three days a week and at this time the formula decided upon, is given to the nurse in charge, who prepares all formulaes, the mother coming daily for the feedings.

Each case is carefully watched and if the mother does not return with the child, the case is referred to the Visiting Nurses. The nurse reports sanitary and social conditions to the doctor, and in many instances her assurance to the mother does much towards stimulating the patience of the mother, who too often expects results in a few days feedings.

A deposit of \$1.00 is required of a patient, to cover the cost of the bottles and crates, and when thought best, a charge is made to cover the cost of the milk; but in most instances this is impossible.

Through the medium of a milk station, it is hoped that a double benefit may be derived,—first, it is the means of lessening the infant mortality of our city, not alone by relief but by education. Second, it is impressing upon the students the need of greater thought of the baby and its food.

Often we hear a patient say, "I could not nurse my baby, so the doctor told me to try condensed milk," (any one of the patent foods being mentioned). Or oftener still, it is some kindly (?) neighbor who suggests some one of the many substitutes for mother's milk.

Hospital care or special nursing service is fast becoming popular with the maternity case in town. Here the nurse, the physician's right hand as it were, begins by giving pre-natal advice, and later through her twenty-four hour vigil is able to report in a very short time, any symptoms of disturbance which the doctor may fail to note in his twenty minute call. But what of our friend the over-worked country practitioner? He

who has had no opportunity to give pre-natal advice, owing to the fact that he many times finds himself face to face with a patient whom he has never seen, until called to attend during the last stage of labor.

In the country, as in town, the only answer is "education." And the school that recognizes the need of more education along these lines, is educating not alone its students, but the public at large.

"As the twig is bent so the tree is inclined." Often do we hear this repeated as a lesson in morals. Why not apply it to the physician as well?

It is unreasonable to expect a poorly nourished child to develop fine physique, nor should we expect the best developed mind with a sickly body.

The development of the little one depends largely upon the doctor who cares for him during the first years of his life. Does each doctor feel his responsibility, and is he equipped to assume it?

Bessie B. Randall, R. N.

Supt. Visiting Nurse Assn., Omaha.

To the Members of the Nebraska State Medical Association:

Section ten of Chapter thirteen of the Constitution and By-Laws of the Nebraska State Medical Association reads: "Each county society shall have general direction of the affairs of the profession in the county and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member and by the society as a whole to increase the membership until it embraces every qualified physician in the county.

"Self preservation is the first law of Nature," and this law was largely responsible for the organization of our association. There is no harm in admitting that it likewise is the greatest reason for its continuence. By organization the power of a group of individuals is multiplied. This is true of the medical profession of Nebraska. But, the increase of power due to organization comes not because of the efficiency of a half-dozen officers. It comes thru the opportunity afforded each

individual member to exert himself toward a common end. The value of our organization and its success is bound to be measured by the extent to which our members act upon this principle. Each of us is fully occupied with his own private affairs and it is easy enough to overlook the duty we owe the profession as a whole. If, on the contrary, you are saying or doing, at every opportunity, something to my advantage but I forget all about you, this is not a square deal. There is need that we be often reminded of the above provision of our laws. It is quoted because it is quite likely some of our members never saw it or have ceased to remember it. It is an excellent provision. To be a member of our Association is a privilege. With the privilege comes an obligation which is here set forth. Let us not sponge. Let us contribute just a little more than we expect to get out of the organization. That will make the coming year a great success.

Now, our Association is not so entirely selfish as a casual notice of the above remarks might seem to indicate. The highest attain-

ment possible for every physician is the goal. Therefore, the best possible service, from the most thoroughly equipped physician is what we seek to provide for every community in which our membership reside. Our people will find it difficult to point to any legislation or any public service which aims to promote the good health of the community, which did not originate with the Nebraska State Medical Association, or at least receive its efficient support. And, we are still on the job. An examination of the report of the proceedings of the recent meeting of the Association, as published in this issue of the Journal, will show what is to be the special program for the present year.

The demand upon every member is for a broad minded, unselfish, earnest interest in everything for which our Association stands. What would be the result if our one thousand members would make an honest effort, during the present year to live up to the requirements of the above quoted Section Ten?

W. F. Milroy, M. D.

President Nebraska State Medical Association.

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STAFF:

Surgeons

B. B. Davis, M. D.
C. A. Hull, M. D.

Eye and Ear

F. S. Owen, M. D.
A. B. Lindquest, M. D.

Attending Physicians

J. H. Vance, M. D.
B. W. Christie, M. D.
A. Johnson, M. D.
E. T. Manning, M. D.
Pathologist

Consulting Physicians

W. F. Milroy, M. D.
H. M. McClanahan, M. D.
W. O. Bridges, M. D.

Mental and Nervous Diseases

J. M. Aikin, M. D.

Skin Diseases

Alfred Schalek, M. D.

Obstetrician

C. W. Pollard, M. D.

X-Rayologist

A. F. Tyler, M. D.

Resident Physicians

L. E. Hanisch, M. D.
A. H. Webb, M. D.

THE NEBRASKA STATE MEDICAL JOURNAL



ESTABLISHED 1916 BY THE NEBRASKA STATE MEDICAL ASSOCIATION

Vol 1.

Omaha, Nebraska, August, 1916.

No. 2

Pancreatic Cyst In a Boy Eight Years Old.*

George P. Shidler, M. D., York.

Pancreatic cysts attract attention because they are uncommon, and we are presenting this case to the society as an interesting rarity following a very common injury to the epigastrium. About one hundred seventy-three cases of operation on pancreatic cysts have been recorded. Hale White states that in nearly six thousand autopsies at Guy's Hospital from 1883 to 1894 only four cases of pancreatic cysts were found—one of which was an hydatid cyst.

Cysts of the pancreas are classified as:

1. True cysts of the pancreas.
2. Pseudocysts.
3. Hydatid cysts.

True cysts may be retention cysts due to obstruction of the pancreatic secretion with resulting dilatation of the ducts of the acini, or they may be proliferation cysts or cystic neoplasms, really cystic tumors due to spontaneous proliferation of the epithelial elements of the gland with the accumulation of fluid in the cavities which are so formed. These may be cyst adenomata or malignant epitheliomata or carcinomata. Congenital cystic disease of the pancreas is exceedingly rare.

Retention cysts of the pancreas are often caused by the partial or intermittent occlusion of the ducts by compression caused by tumors or gall stones or closure of the duct by pancreatic calculi or rarely by a large calculus in the papilla of vater. Swollen lymph glands may press on the ducts, adhesions or intestinal parasites in the duct may be rare causes. Chronic pancreatitis is believed to

be the most common cause of retention cysts. Occlusion of the pancreatic duct is followed by interlobular pancreatitis which when far advanced may cause diabetes.

Retention cysts are frequently quite small and may not cause symptoms; they may be quite small and beaded with rosary-like dilations described as "ranula pancreatica," or single cystic dilatation as large as a man's fist. Occasionally they are multiple, two of equal size, unilocular or multilocular.

As a cyst enlarges the substance of the gland is destroyed, and at the same time interstitial inflammation is produced in the adjacent gland tissue. The cyst may become pedunculated. Retention cysts of large size have been reported containing fifteen to twenty quarts of fluid.

The wall of the cyst is composed of dense fibrous tissue with few cells and may be 3-4 mm. thick. Occasionally the wall is thin. Large blood vessels often traverse the outer surface. The inner surface consists of an epithelial lining of a single layer of cylindrical cells, which may be flattened by pressure sometimes smooth and shining and free from epithelium. In some cases the cyst lining may have ridges or septa; the remains of other cysts or clotted blood may be found adherent to the surface.

Pseudocysts constitute a large proportion of the cases reported under cysts of the pancreas. They may be found within the substances of the gland but the greatest number of pseudocysts are formed in contact with the gland particularly in the lesser peritoneal cavity as a result of injury to the pancreas. Blood and pancreatic juice may set up a mild inflammation or peritonitis which closes the

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foramen of Winslow and produces a tumor which is difficult to differentiate from a true cyst. Enzymes similar to those of the pancreatic juice have been found in traumatic cysts. The wall is formed by dense connective tissue. There is no epithelial lining to the cyst but this does not always determine the nature of the lesion since the epithelial lining may be destroyed by the pancreatic juice.

In thirty-three cases of pseudocysts Korte has found that traumatism to the abdomen preceded the appearance of a palpable tumor. Among various injuries to the epigastric region are the kick of a horse or compression between buffers. Indirect force may also produce it, as a violent fall by tearing the pancreas. Traumatic cysts may contain blood, but only clear fluid may be present. Specific gravity varies from 1007-1028, reaction generally alkaline, rarely neutral and rarely acid. Sugar is seldom met with, albumin present. If a cyst contains fluid which can digest coagulated egg-albumin or split starch it is probable that it originates from the pancreas.

The diagnosis of a small cystic tumor of the pancreas is well nigh impossible. As the cyst becomes palpable and especially when it invades the larger cavity it becomes a possibility and often a probability. A round fluctuating tumor lying in the epigastrium especially when the greater part is to the left of the median line, is suggestive of pancreatic cyst. Most frequently the cyst lies between the stomach and transverse colon; the stomach usually covers it. Even when the cyst occupies the more uncommon position between the stomach and liver percussion of the cyst while inflating the stomach is of value since the tumor becomes gradually covered as the stomach distends. Cysts of the liver or spleen or a distended gall-bladder remain superficial and are not pushed back and covered by distending stomach. Mesenteric cysts lie near umbilicus and are freely movable. Disappearance of the tumor is more suggestive of hydronephrosis.

Case History.

G. A., boy, eight years old, while jumping over a manger in a barn, fell from the height of his spring injuring himself by striking in the epigastrium against the top rail—a very

common incident in a boy's life. Immediately he was seized with severe gastric pain and vomited several times. He went to the house. His parents judged by his pale face and pinched expression that he had hurt himself badly. A physician was called and the parents were told that he would be all right in a few days. For the following six weeks the boy vomited several times daily during which time certain foods seemed to make gas on his stomach which was relieved by vomiting, and there was, during this period, some constipation which was relieved by an enema. During this first six weeks period the boy walked bent forward like a man with lumbago. Then the pain in his stomach ceased, his vomiting stopped and he began to straighten up again. At the end of the second six weeks period we first saw the boy.

He was a slightly emaciated lad, about up to standard in size, color good, pulse 76, temperature normal, respirations 22, complaining of nothing in particular excepting the size of his abdomen. The Sunday previous his parents, while putting on his best suit of clothes, had noticed his trousers were too small to reach about him. There was a large fluid content of some nature. He resembled in appearance a full term pregnancy. Large collateral veins forked in every direction through the skin. We could not determine that the fluid content was on one side more than another, or that either flank was affected by change in posture. This however might have been of aid some weeks sooner, had he been seen then. Absence of organic heart lesions, no albumin nor casts in the urine and absence of ankle swelling precluded ascites. A stool examination showed apparent normal pancreatic digestion; there was no sugar in the urine.

Twenty-four hours' observation showed nothing further of definite assistance in diagnosis, excepting that the boy slept and ate well, and that his bowels moved naturally. The main points in the history then were (1) that a boy eight years old in perfectly good health was hurt in the epigastrium about Nov. 1, 1915; that he vomited, had symptoms of indigestion relieved by enemas and vomiting for the next six weeks during which time he was bent forward like an old man;

(2) during the next six weeks his gastric symptoms gradually diminished, corresponding probably to the escape of the cyst into the greater peritoneal cavity, he assumed an upright posture, and his abdomen began to increase in size preceptibly. He had lost about fifteen pounds in weight. We made a diagnosis of traumatic cyst, probably pancreatic and advised exploratory operation.

On opening the abdomen the bluish black walls of a cyst came first into view. So completely did it fill the cavity that a trochar was introduced and several quarts of a clear, yellowish fluid withdrawn. This left a sac about the size of a rugby football with walls of dense fibrous tissue threaded in every direction by dilated veins. The neck of the sack came into the general peritoneal cavity at the ligament of Treitz by the side of the neck of the jejunum. The lining of the sack was a less-vascular, pinkish-white tissue with no irregularities of any sort. At the top of the sack, behind the stomach, digital examination revealed a small opening with a hard, cartilaginous neck through which the index finger would not pass and which gave the palpatory sensation of an unpregnant cervix uteri.

Any attempt to find a cleavage-plane for the cyst was unavailing—it seemed intimately a part of the transverse colon and jejunum as it came into the abdomen. Therefore resection was abandoned and permanent drainage decided upon. A part of the sack was removed leaving enough to easily reach the parietal peritoneum when puckered up and brought to the median incision. This left the transverse colon above the cyst wall. A rubber drainage tube was introduced and the abdomen closed.

The boy made an uneventful recovery, leaving the hospital in two weeks. A clear watery fluid discharged, sometimes markedly increased, for several weeks which finally ceased entirely May third, approximately three months after operation and ten weeks after drainage was removed. He has regained his fifteen pounds in weight, and, so far as can be discovered, is perfectly normal in every respect.

The Operative Treatment of Trachoma, and Its Complications.*

Homer Davis, M. D., Genoa.

Trachoma is a disease that demands the attention of the medical profession and is of international and general economic importance. A large percentage of blindness and defective vision comes from trachoma. The Government will not permit any emigrant suffering from this ailment to come into our country. Although this regulation has been in force for a number of years, we still find it quite prevalent among those of foreign birth, principally those of central and eastern Europe. In our own country it is more prevalent in some localities than in others. Owing to its peculiar contact contagiousness, it is more prevalent among a class of people who live closely associated together, and who disregard the most common laws of cleanliness and hygiene. If one in a family has it, the rest of the family are almost sure to have contracted it, and should be carefully examined, even though they show no outward signs of the disease. We find it quite commonly in the American Indian tribes.

It is an important disease to the medical profession, because it is only the lightest cases, or those that come under treatment early, that are completely cured. In other cases there are left sequelae which are accompanied by a permanent impairment of the eye. These sequelae affect either the lids and conjunctiva, or the cornea. The lids are often left distorted with faulty disposition of the cilia. The distortion is produced by the cicatricial contraction of the conjunctiva and the tarsus, as a result of which the tarsus bends in such a way as to be convex. The distortion is produced mainly by changes in the tarsus as this is as often the seat of inflammatory infiltration in severe cases of trachoma, as the conjunctiva itself. The immediate consequence of this distortion of the lid is an alteration in the position of its free border, and of the cilia springing from it. The free border of the lid no longer looks straight downward, or in the lower lid, straight upward, but backward—inward, and the cilia touch the surface of the cornea—

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trichiasis. If the distortion continues, the entire border turns backward and entropion is produced. Ectropion also occurs, principally in the lower lid. This is caused by a great thickening and proliferation of the conjunctiva. Corneal opacities are among the most serious sequelae of trachoma, in that the sight is affected, and blindness in every degree occurs. It is not in the scope of this paper to deal with this subject, important though it is. Trachoma then, is a disease which is distinguished by its duration, extending over years, and which in many cases renders those who are attacked by it, half or wholly blind. If we add to this the fact that because of its infectious nature it is exceedingly apt to spread, we shall understand how, for those regions in which it is endemic, it is a veritable scourge.

There are several important things to consider in the treatment of trachoma that place the operative measures in especial favor. The daily application of the copper pencil is a painful procedure and must be carried out thoroughly for six months to one year, if this is resorted to alone. To do this requires such persistence and patience both on the part of the operator and patient, that there is always a temptation to neglect the treatment, or to stop treatment too soon. It is to overcome this that I advocate operating in every case of trachoma, regardless of the severity of the case, unless complications are present to temporarily postpone the operative procedure.

The cases that present large papillae, or coarse granules or raspberry like projections, or gray translucent roundish granules in the retrotarsal folds, should be pressed out with the Knapp Roller forceps. The technique of this operation is first to evert the lid and with a cotton swab, dipped into a two per cent solution of cocaine, thoroughly swab the field of operation, wait about three to five minutes, and again swab with a ten per cent solution of cocaine. After about three to five minutes, the trachomatous granulations may be thoroughly squeezed out with the Knapp forceps. If any granulations are present on the lower lids they should also have the forceps applied thoroughly. The after care consists of the

application of cold wet packs until the reaction from the operation has subsided, and also the use of some mild antiseptic collyrium, for the first day or two. Then we begin the daily application of the copper sulphate pencil, the upper lid being everted and the pencil applied lightly, with one sweep back and forth over the retrotarsal fold. If at any time during the next two or three weeks we discover any granulations whether single or grouped, they are expressed after using a three or four per cent solution of cocaine. It has been our experience that about fifty per cent of the cases treated in this manner are ready to be discharged as cured in about ninety days after operation. However, they should have an occasional inspection for at least six months after the daily treatment has been discontinued. If in doubt about the result we apply the copper pencil twice a week for four to six weeks longer.

In a certain class of trachoma cases there seem to be practically no granulations present, or they are very small and confined to the margin of the tarsal fold, when the lid is everted. It formerly was thought necessary to apply the copper pencil to these cases without operating. Having observed that these so called light cases were often very stubborn in yielding to treatment, we have during the last year been cocainizing the lids after the method used in the complete operation, and then taking a piece of sterile gauze, wrapped securely around the finger, rubbing the affected parts until the finer red granulations were removed. We then swab with cold sterile water, until the hemorrhage is controlled, and immediately apply the copper pencil thoroughly over the denuded surface. This creates quite an inflammatory reaction, which is met in the usual way for a couple of days, after which the lids are daily everted and the copper pencil applied as in the other cases. We claim for this method a surprisingly short time for cure of trachoma.

In the treatment of fifty to eighty cases of trachoma each year for the last few years, we have no cases of failure to report, and we find that all cases should have either the regular operative procedure, or the thorough rubbing with gauze, and then the time for

treatment is shortened and the usual complications of trachoma are avoided to the maximum.

As everyone who has treated trachoma is aware, a trachoma subject is very apt to have an ulceration of the cornea during the course of the disease, resulting secondarily from some foreign body or some infecting agent outside of the trachoma. During such a time the application of copper should be temporarily stopped and a two per cent solution of silver nitrate, or a twenty-five per cent solution of argyrol used, treating the ulcerated cornea in the usual way, with atropine, soft yellow ointment, and hot packs.

Pannus is one of the complications of trachoma that needs some operative measure. It is well to put a pannus eye under the influence of atropine for a month or so, during active treatment. A case of pannus is almost a sure sign of an old chronic case of trachoma and needs the usual trachoma operative treatment. After the acute inflammation resulting from this operation has subsided it should receive especial attention. The thickened conjunctiva over the sclera should be thoroughly rubbed with a tightly made swab on a stout probe, and if the hypertrophy is of considerable thickness it should be snipped through to the sclera in several places in the region of the limbus. This operation should be done under cocaine anaesthesia. The favorable result of the operation depends upon the inflammatory reaction. The reaction seems to favorably influence the absorption of the hypertrophy and clears the upper part of the cornea affected by the pannus.

Entropion and trichiasis caused by the formation of cicatricial tissue are complications that call for operative measures. After clearing up the inflammatory conditions and removing the trachoma, the tarsal conjunctiva and cicatricial tissue, are divided longitudinally, and a piece of mucous membrane, usually from the lip, is grafted into the clearance. This is an operation that may be well left to the specialist.

DISCUSSION.

Dr. Dayton, Lincoln—I want to congratulate Dr. Davis on his success in the treatment of trachoma. He has had more cases than I have had in the last ten years in Lincoln, of true trachoma. Now there

is a question that is not decided even by men of vast experience, just where follicular conjunctivitis begins and where true trachoma begins. We have had examinations in the schools of Lincoln for trachoma and I have had a few cases. I presume I am fortunate in not getting many of them because I have not seen many true trachoma cases. But Dr. Davis has been out among the Indians where there are more trachoma cases owing to the surroundings. Twenty-five years ago two-thirds of my cases were trachoma. That was due to the unsanitary conditions, sand, dirt and flies that carried the contagion. Now the contagion is not carried because it is prevented by inspection of schools and the community is taught that trachoma is dangerous.

The Doctor's treatment is of course an excellent one. There is nothing that I have found—and I have found nearly everything in the past thirty-five years—to cure trachoma, and I have gone back to nitrate of silver and the copper pencil. The copper pencil is used where there is an inflammatory condition. The silver is used where there is secretion and where there is more or less granular condition.

The bichloride solution, the sand paper, the swab, the copper pencil, all of these procedures are beneficial, but it is hard for the patient to stand it, and if the Doctor has his patients trained so that they will stand this treatment he is to be congratulated.

Dr. H. B. Lemere, Omaha—It has been my custom to do the trachoma expression under a general anaesthetic. The less trauma used the better. For this reason I have discarded the forceps that I formerly used for everting the lid, and I use instead a lid elevator that is bent a little more sharply than the ordinary lid elevator so that when the lid is folded back on this elevator the upper cul-de-sac is plainly visible. The same effect can be also obtained on the lower lid.

The Doctor recommended the Knapp roller forceps. Other expression forceps such as the Noyes and the Gifford are somewhat simpler and sometimes more effective. Before expression there should be scarification with a sharp scalpel then the expression can be carried out with less trauma. Following expression the after treatment consisting of the use of a weak solution of nitrate of silver, as one-half of one per cent, has proven very effective.

A good effect is obtained if the conjunctival sac is filled with bichloride ointment, 1 to 5,000, during the night.

Dr. J. Lue Sutherland, Grand Island—I would like to ask Dr. Davis—as his practice has been among the Indians at the School—what measures have been taken by the management there to control the spread of this disease? Have most of the cases that he has had come from somewhere else, or have the cases developed there? What measures have been instituted to protect the persons that are not diseased? It is like a good many other diseases, the treatment is so varied that it leads one to think that none of

the remedies used are very efficacious in eradicating the disease, and evidently from the good results the Doctor has reported following his treatment he has certainly been more fortunate in continuing the treatment than I can train my patients to stand. A very few weeks is as long as I can keep a trachoma patient.

Dr. W. P. Wherry, Omaha—I have much respect for Dr. Davis' opinion and his experience with this problem, although it may seem radical. I am firmly of the opinion that time will tell us that his points have been well taken.

Dr. J. J. Hompes, Lincoln—In regard to entropion and trichiasis, to my mind a much easier operation, and one that gives the best results, is to do an extirpation of the cartilage of the lid. You can get along about as well without it, and the thing lies flat and you don't have curling up afterwards. Get rid of the cartilage at the first operation, you are then through with it. An operation that has been tried by a good many men, and I have had a case recently when it seemed to be very beneficial, and where there was a tremendous amount of pannus, is to go completely around the cornea and separate the cartilage. It is surprising the excellent results you get from such treatment.

Dr. Homer Davis in closing the discussion said:*

In regard to the large number of cases I have handled, I will say that we have a United States government school in our town, and I happen to be the contract physician. I handle these cases, and that accounts for my large experience in this particular disease. The number of cases I think last year was about eighty. The children come to the school from several states. They come from Oregon, Montana, Idaho, some from Washington, and North and South Dakota, and as far east as Maine. The government has a great many field men out, and good ones, too, and it is their duty to visit these schools three or four times a year. They examine every eye of every pupil and see whether I have neglected my work or not. The question of diagnosis that is raised is not probable. Just where to use silver and just where to use copper in similar cases, and when to use copper and when not, does not enter into my practice up there. Our experts recognize that there is no such question; that it is all copper, only in cases of complications, where the copper would be too severe. They recognize nothing but the application of copper, so there is not a question of when or where, it is always copper. In regard to the special operation, I think I spoke about that in the second operation. In cases where you cannot get an expression, cases where you know there is infection and where the granulation is hidden, there should still be application of the copper, and where you cannot get right to the point of infection open wide so you can give the copper cure.

In regard to the question of a local or general anaesthetic, I treat a great many cases of trachoma aside from the Indian children. Naturally my ex-

perience would bring these cases to me, and I have just about the same amount of experience in giving local anaesthetic to those who are my patients as to those who are my contract patients, and I have yet, in all my operations, to see a case that could not be handled with local anaesthetic—cocaine—a great deal better than a general anaesthetic generally. Of course we all know that there are children who are extremely nervous, I use a general anaesthetic where children are extremely nervous.

I think my remarks probably would answer the question raised by Dr. Sutherland in regard to the protection of others from disease spreading. We use every precaution to keep the disease under control.

A Plea for Conservatism in the Treatment of Acute Otitis Media.*

W. P. Wherry, M. D., Omaha.

One of the things particularly noticed in the generalized study of Acute Otitis Media, is the striking difference in the mode of treatment pursued by different observers. A close study of the various measures in vogue and an analysis of their technic will show a sufficient difference, that we must come to the conclusion that if one system is right, the others must be wrong. And along with this analysis would be noted the large number of major surgical sequelae with some measures as compared with the relatively small number with another system. In reflecting on these definite facts, and again in considering the elements that might influence an opinion and a diagnosis, I am constrained to make a plea for conservatism as well as for a scientific reliable system of technic in the handling of this problem.

Of the many systems used in the treatment of this disease, the three most often used are: first, no treatment; second, irrigation; third, gauze drainage. The first can be dismissed without argument as being all wrong.

In the irrigation method, the work and care is largely in the hands of the patient and, therefore, it is quite impossible to standardize the system insofar as the various procedures are concerned, especially is this true in the degree of pressure exerted in the process of irrigation, as well as the maintenance of asepsis in the medium used. It is also impossible to know definitely the degree of cleanliness of the patient, and numerous other

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points that should be watched in the continuance of maximum service to an infected area. Further in irrigating with an aqueous solution the parts are kept soft, and there is a tendency for the drum to become more edematous. It is only logical, that the more induration and oedema, just that much harder will it be to maintain accurate drainage. It is an accepted fact that most untoward complications can be traced to insufficient drainage through the drum. Again the irrigation will only clean out the canal, and will in no wise affect the drainage from the middle ear.

In contrast to the irrigation there is the gauze method, whereby small wicks of gauze are maintained in the canal, and in contact with the drum. It is usually customary to have the end approximating the drum saturated with an 8 per cent Carbolized Glycerine. This method can be maintained under strict asepsis, the trauma is reduced to a minimum, the efforts of the patient clean and unclean are minimized, and in addition the wick effect of the gauze will not only drain the canal, but will assist materially in draining the middle ear. The Carbolized Glycerine has a slight anaesthetizing influence on the drum, not only lessening the pain, but lowering the induration, oedema and local infection within the drum, and thus assisting materially the maintenance of uninterrupted drainage of the middle ear. This method from logical reasoning should be the conservative method, because it more nearly approaches established surgical precedents.

During the past winter, associated with a virulent epidemic of influenza and scarlet fever, there has of necessity been an active run of middle ear infections and it has fallen to my lot to care for over 300 cases.

First: I have selected a series of 150 cases acute in character, where drainage was necessary, in which I was enabled to maintain ample drainage and where complete resolution with return of normal hearing was the end result. These 150 cases were 110 gauze, 40 irrigation.

The average duration of the active pain in the gauze series was three days, and in the irrigation series seven days. The average duration of the discharge was eight days in

the gauze series, and seventeen in the irrigation.

In less than 2 per cent of the gauze series was it deemed advisable to change to irrigation, while in 12 per cent of the irrigation series, a change to gauze was made that the best interest of the patient should be conserved. In 3 per cent of the gauze and 11 per cent of the irrigation, the period of active discharge continued for over four weeks, yet none became surgical mastoid cases.

In 22 percent of the gauze series where a paracentesis was done under careful asepsis, the original gauze and bandage was left. The discharge was profuse for a day or two, and the pain was also evident for the same length of time, yet upon the fourth to eighth day when the bandage was removed, the infective process had entirely cleared up, and the middle ear was normal. In these instances we were able to prevent a mixed infection. Experience has proven that to prevent a mixed infection is a desired result as the local resistance is thereby better able to quickly dispose of the infecting agent. The prevention of a mixed infection is impossible in the irrigation system.

Of the several conclusions that can be drawn from this series of cases, the first I believe would be that gauze drainage maintained under careful asepsis, is more ideal as a conservative routine practice. When a paracentesis is done under careful asepsis, the better practice is to leave the original gauze and bandage for from six to eight days unless positive symptoms make a change advisable. Furthermore, that to advise mastoid operations simply because the discharge has continued over a certain period is quite far from conservative.

I am convinced that careful study, precise judgment, and the exercise of expert skill in diagnosis will materially reduce the percentage of mastoid operations, and therein the diagnostician will be practicing medicine closer to lines determined by scientific investigation. A man practicing radical otology will admit that in many instances upon concluding his operation, he has been disappointed in the operative findings. Each of these instances is an error, either in skill exercised,

in information at hand, or in judgment used and each error should lessen his claims to specialism.

I am also convinced, that empirical practice is by no means scientific practice, and empirical practice is no measure of one's ability as a diagnostic specialist. I believe that conservatism in surgical opinions should be the keynote; that each case should be a careful study; the symptom complex should determine the course to be pursued. I am not arguing against operative interference but rather against empirical surgery, and surgery on suspicion. I am arguing for diagnosis, for knowledge of symptoms on the operator's side. I am arguing against the idea of a four-day limit, or three weeks limit being used as sufficient reason for surgical interference.

I have selected a series of 38 cases that had been discharging over quite a period of time prior to coming to me, yet all were sub-scute cases. In some drainage was sufficient, in others the enlargement of the drainage openings was necessary. In none was there sufficient evidence to warrant a surgical mastoid diagnosis. Many of these cases were of sufficient duration that empirical limits would have warranted operation. These cases were treated 30 with gauze, and 8 with irrigation; careful asepsis was observed in the dressings. The gauze series went on to resolution and recovery, one was changed to irrigation, and again rechanged to gauze. In the irrigation series, three not doing well were changed to gauze with improvement in their progress. The 38 terminated in a perfect result as to resolution, and so far as I know as to hearing. Unfortunately my records were not kept with sufficient detail to be able to draw an average duration, but my memory impresses me firmly that the gauze series made a more rapid recovery. I know the symptoms were kept under much better control in the gauze series.

An analysis of this series serves to emphasize the conclusions drawn from the first series, and especially to emphasize the fallacy of empirical limits.

My experience this winter in the treatment of these 300 and some odd cases, has

been that where proper care was instituted and carried out prior to the advent of definite surgical mastoid symptoms, that only one case went on to mastoid operation. The several mastoids that I have been called upon to do save one, were cases where indifferent care had been exercised.

I want to urge the importance of considering every case of acute otitis media as a serious entity. I believe every case should be treated daily, under careful asepsis and drainage should be maintained at its maximum.

In conclusion then, I would define conservatism in its bearing on acute otitis media, as a careful diagnosis; an accurate daily observation and treatment; a precise study of the symptom syndrome as it is developed; the maintenance of sufficient drainage and the determination of surgical interference when the opinion is based upon facts rather than upon suspicion.

150 cases acute otitis media—drainage necessary—sufficient drainage maintained.

Results—Complete resolution with return of normal hearing.

	Gauze Drainage	Irrigation Drainage
	110	40
Average duration of active pain.....	3 days	7 days
Average duration of discharge	8 days	17 days
Cases started under one system but changed to other on account of patient not doing well.....	11½%	11%+
Discharge active for over four weeks, without advent of surgical mastoid symptoms	3%+	11%+

Dr. Dayton, Lincoln—I think the doctor's paper an excellent one in every feature except one, and in that I cannot agree with him, viz: that the drainage by gauze is the best system to use, a statement I believe he makes in his paper. There are some cases that have been opened up early and in which the infection is in doubt, where if careful asepsis has been followed a wick of some kind can be introduced and a mixed infection thus be prevented. This maintains not only the asepsis, but it affords also a tract for the passage of the discharge, but instead of using the gauze, as Dr. Wherry suggests, it is our practice, or mine at least, to use a small wick of cotton made as small as possible and put up with the edge to

contain the solution against the wound made by the paracentesis. If it is a serious infection, in 12 to 24 hours you will have an abundant discharge. If, on the other hand, it is a less virulent infection within the same 24 hours it will have drained out and there is no further trouble. But when you get the drainage after, say 24 hours, to my mind the wick acts as a dam and instead of affording drainage plugs up the passage. So far as using irrigation, there is a right way and a wrong way and there are right solutions and wrong solutions. I think the solution should be as nearly aseptic as possible—boiled water and a salt solution are the best and everything should be cared for as carefully as you would in a wound of any kind. Then the little common glass drainage or rubber syringe that a great many people use is absolutely useless for cleansing purposes in so far as middle ear troubles are concerned. This difference of opinion in the handling of these cases has not been of recent years. When I was in Europe in 1887 and 1888 the same thing was being hashed over by the big fellows there. After all it is the results that count, each of us has determined upon the best way for us, and as for me, I am "ferninst" the drainage by gauze.

Frederick Teale, Lincoln—There are a few facts in drainage by gauze or cotton, I believe that should be emphasized. In many cases I follow the procedure as outlined by Dr. Dayton namely a little wick of cotton sometimes with medication and sometimes without. Now that wick will not maintain drainage unless you have the cotton in contact with the wound and at the outside end in contact with a fair sized piece of cotton. If this precaution is not followed you will not get drainage but rather the cotton will act as a dam. Then another thing, there are a lot of cottons on the market, and I have found only a very few that act properly as a means of drainage.

The point in regard to irrigation—and what do we use the irrigation for? I use it, not as Dr. Dayton suggests, not with a little syringe, but with a fountain syringe. To my notion the advantage of irrigation is in the application of heat to the drum. We all know that the most difficult part of drainage in these cases is to keep the incision open enough to facilitate drainage, and I thoroughly believe that irrigation with the solution as hot as it can be borne will promote this desired end.

Homer Davis, Geneva—The technique of putting in gauze or a little piece of cotton or using irrigation or not using irrigation or using an antiseptic or not using an antiseptic or using something that is aseptic—that is all after treatment, and is very important. After all the desired end is simply a question of getting the pus away and reducing infection. Personally, the gauze drainage appeals to me because I have had better success with those cases that I have had under observation with gauze treatment than with any other system of treatment. In fact, I remember some seven or eight years ago while attending post graduate school in Chicago, of hearing Dr. Andrews especially emphasize gauze drainage treatment, using as his medium a 12½ per cent

solution of carbolic acid, instead of an 8 per cent solution as advocated by Dr. Wherry. I suppose possibly the per cent has been lowered on account of some caustic properties of the carbolic acid. But the point that appeals to me as a practitioner in the country is when to do this paracentesis, and what to do, whether to be radical or whether to be conservative. I was in hopes that Dr. Wherry would bring that point out. The subject of his paper, speaking of conservatism, I though maybe had something to do with the operative procedure and I am a little disappointed in not hearing that part. Whether to do a paracentesis in every case of common ear-ache is a question which I would like to have discussed by people who have had experience in that direction. There is nothing like practice to tell one whether to wait until the temperature seemingly rises from some middle ear trouble. There are a lot of deserving questions there that have not been brought out on such an important topic as this.

John B. Potts, Omaha—I have been very much interested in the portion of Dr. Wherry's paper that I heard, unfortunately I was not able to hear the first part, but it seems to me that as Doctor Davis has stated, the most important point in Dr. Wherry's paper is not the particular method of treating the ear with the gauze drainage or with the open drainage, as he has used both, but rather that he suits his method according to the case. I suppose by that he means the character of the discharge and the character of the opening in the ear drum and so on. He determines his drainage according to what the indications are. The principal idea is to determine when you have reached the point where it is more conservative to continue your treatments and when it is time to intervene with operative procedure. In my opinion a paracentesis depends considerably on the appearance or the symptoms of the case, and the character of the infection that is going the rounds at the time you see the case. For instance, this winter we found, and most of the men I have talked with also found, that the infection was very virulent and the pain started in almost at once and was very severe; the process was very rapid, the ear drum became inflamed and bulging within a few hours and if it was not relieved it rapidly invaded the mastoid bone back of the ear so that in these cases paracentesis was indicated very early. Many of these men did a paracentesis within 12 to 24 hours after they saw the case; if they didn't do this, the ear broke of its own accord. As an abortive measure my personal preference is to use hot water in the ear, using a medicine dropper with hot water in the canal and if the case responds to your treatment you may not have to do a paracentesis, but if the infection is a virulent one, I personally advocate the paracentesis early. I think a delayed paracentesis means an increased risk.

Regarding conservatism, it is a question of doubt whether you could call a treatment conservative which continues to treat the ear after it is past the time that symptoms for a mastoid operation have developed or whether you consider that radical; each

man has to form his own conclusion as Dr. Wherry has done in this remarkable series of cases which he has handled. I think he is to be complimented on his judgment in these cases. Still, I do not think men in country practice should be lead astray where they cannot possibly control their patients as he has controlled his. Where a mastoid has been allowed to run too long, it is a much more serious condition than when it begins. I think the number of cases operated on where there is not infection is usually rare. Personally, I have never seen but two men operated on where the diagnostician was not confronted by pus being found in the mastoid. These were cases of hysterical mastoids where they had probably misled the operator. As to when it is time to intervene, I think if the case runs along and you have used vigorous treatment and do not get any results and there is some tenderness back over the mastoid after two weeks, that beyond that time you are taking considerable chance, if you do not put your patient in a hospital where you can have a chance to do an operation on him if he shows any variation of temperature. Just in a rough way you have got to have some rule to go by. In other words, if the discharge is letting up and you have a fair opening in the drumhead you can continue your treatment you might say indefinitely, at least you can extend it along two or three weeks without taking any unnecessary chance.

I would just like to say one word about the open method and the packing method. There was a certain rich man's daughter that was taken with acute otitis media. Her home was in the east and she telegraphed her father that she had otitis media, and he telegraphed back to get the best medical attention in the city. A famous specialist was consulted and he told her to treat it with the packing method. This was conveyed to the father who acquiesced in the treatment, but the next morning early another telegram came from the father saying by all means treat the patient with the open method.

J. M. Banister, Omaha—Mr. Chairman: I think the doctor has raised a very important point. I think that as surgical men, when we get ready to operate, we should go by the appearance of the pus and the pathological conditions that we see instead of giving a time limit to when we should operate. I do not see why we should wait 12 hours or 24 hours to do a paracentesis when an examination of the drum shows an inflamed and bulging member; it is almost sure there is pus behind it. And in general surgery we do not allow pus to collect, we go for it, and under these conditions I think we should do a paracentesis. We are following a thoroughly established surgical principle in doing that, we are draining a cavity in which pus must otherwise do a great deal of damage. By doing a paracentesis we relieve pressure and we need to have the pus drain into the external auditory canal instead of into the anterior and into the mastoid cells. Personally I would not want to limit the time, but as soon as I found the swollen member in that condition I should not

procrastinate longer, whether it was one hour or ten hours or twenty-four hours. Another point, in operating upon a mastoid I do not think it is necessary to limit the time either. If you find decided symptoms of a mastoid—if you find a profuse suppuration going on for some time, you can assume that the mastoid is infected and it would be conservative treatment to open the mastoid and to drain the pus from the drum and to give the tissues a chance to recover. But in these cases where there is no evidence of mastoid, if we simply find the drainage, I do not see why we should subject the patient to a mastoid operation, after two weeks of treatment. In other words, I think we should apply the principles of general surgery to all these conditions. There is only one system of surgical work, and that is this: To remove pus and secure drainage.

J. J. Hompes, Lincoln—I do not believe there is any general rule of practice that can be laid down. I do not doubt for a moment that Dr. Wherry, in following out these cases, has jumped from one treatment to another to get results. I know we all do it in spite of the research work we are trying to do. We do the thing we think best at the time. I think that the one thing that was spoken of that is deserving of a lot of credit and that goes further to give him his fine results than anything else is the fact that he sees his patients every day and if needs be he sees them twice, and if he does a paracentesis in the morning and gets some drainage and pain continues he does another paracentesis and if he goes the next morning and there is more infection he does another paracentesis. I think that is the secret of the result, seeing the patient every day and open it up and get the pus out. I think the application of ice bags is especially efficacious and for this reason that every mastoid cell opens possibly into another mastoid cell and if you have a congestion every time you have an otitis media you have an infection of the mastoid process. These are lined with a mucous membrane; if they are infected the mucous membrane is infected. Now, what do you do when you put on an ice bag? You reduce the congestion, you open the orifice of the cell, you produce drainage. Put on an ice bag, for not one hour or two hours, but continuously, until the pain is gone, until the tenderness is gone and ten hours afterward, and keep up the drainage.

And another thing, sometimes we use gauze, sometimes we don't use anything. In fact, the finest thing is the canal itself, to keep it clean. Now, the mother, or any one about the house can wipe out the canal and keep it clean with cotton on a toothpick. I know you can wipe out an ear and step into the next room and when you come back it is full again. I believe the doctor is right when he says that irrigation in the greater percentage of cases will carry your case along longer than if you keep it dry. I also believe that the use of 4 per cent silver nitrate is worthy of consideration. In addition to the ice bag it is sometimes as necessary to reduce the inflammation in the nose as it is in the ear itself.

W. P. Wherry, Omaha—Closing: If you will per-

mit me just a moment or two, I will endeavor to answer the questions that have been raised, and to particularly enlarge somewhat upon the source of infection in the middle ear, as well as the proper time to do a paracentesis.

Scientific investigation has proven quite conclusively that in practically all instances, a demonstrable infection in the middle ear is permitted to propagate through the medium of the lymphatics. Anatomical dissection also has worked out to a splendid nicety the relation that exists between the lymphatics of the ear, the nose and throat. It can be demonstrated that there exists a central lymphatic station just below the Eustachian orifice, into which drains the lymph from the ear, from the posterior three quarters of the nose, and from the vault. This central station drains directly into the deep cervical along with the glands of the pharynx. It is argued that pathogenic bacteria can be found in the middle ear at any time, and their lighting up depends entirely upon the lowering of the lymphatic resistance, therefore it is not hard to realize that the activity and virulence of a given infection within the middle ear will be largely determined in its incipient stages by the status of the epipharynx, the nose and the eustachian tubes. Consequently in determining upon the course to be pursued in endeavoring to abort an otitis media, much consideration must be given to the nose and epipharynx.

It has been my custom for years to use locally in the ear, an 8 to 10 per cent solution of Carbolic Acid in Glycerine, having the solution hot and repeating often. I give a large dose of castor oil, because a large dose of castor oil assists in the depletion of the middle ear. I use an oil solution of camphor and menthol in the nose and throat, and if the epipharynx warrants a 2 percent solution of iodine in glycerine is applied, especially around the eustachian tubes. This system applied vigorously, and speedily in selected cases, works with splendid results.

The opportune time for abortive measures is in the purely inflammatory stage, prior to the advent of any collection of fluid products within the middle ear cavum. To do justice to the patient, one must acquire the ability to determine through inspection the presence, or the absence of this retained secretion. The indication for paracentesis over abortive measures, is the presence of secretion within the cavum, regardless of whether it is one hour or thirty hours after the advent of the pain. In this particular, I strongly emphasize the remarks of Dr. Banister. In passing, I can hardly see any real or systematic good to accrue from the wholly inadequate system of dropping hot water alone in the ear, I am inclined to criticise this method as unworthy.

A paracentesis done too early under the system advocated in my paper just read, can rarely be followed by any induced trouble, while to wait too long, is not exercising justice to the patient.

I want to correct Dr. Dayton, in that I did not state that gauze drainage was the best. I simply stated facts, and statistics gathered from my study

in this series of cases, however, if figures are worth anything, I am inclined to think the gauze drainage to be the better as a routine.

As to the use of 12 per cent Carbolized Glycerine, the stronger the carbolic acid the more efficient the action, yet experience has shown that over 8 percent is liable in certain instances to produce a burn that is very irritating to the patient, and perhaps interferes with the proper treatment of the otitis media per se.

Dr. Hompes brought up the question of the use of silver nitrate in the ear. I will say, that during the last few months, I have been gently applying a solution of silver nitrate from 4 to 12 per cent upon the drum, in acute cases. To date I believe the pain is lessened some. I believe I keep the drum less oedematous, however, I have not convinced myself positively that the procedure is of great good.

Multiple Abscesses of Liver Following Unrecognized Appendicitis.*

K. S. J. Hohlen, M. D., Lincoln.

In reporting this case I am not reporting a rare condition. Probably most cases of multiple abscess of the liver are caused by appendicitis. It is rather unusual at this day and age that an appendicitis should go unrecognized over such a period of time and end with such serious consequences. It will serve as an example to the internist who strives to cure his appendicitis cases without operation.

December 11, 1915, I was called to a neighboring village to see a young farmer, married, twenty-six years of age. The family history was negative. Personal history was negative excepting for the past three years he had periods when he was nauseated, and had to vomit occasionally. This, in reality, was the beginning of his present illness. For the past six months he had not been feeling well at all, he had no ambition, no appetite and had rather a chilly feeling. He said during this time his right side had been somewhat tender. For the past four weeks he had been confined to his bed. It was very hard during this time for him to retain any food. He had severe pains over entire right side of abdomen. He had been at times very constipated and then again the extreme opposite condition existed. The nurse informed me that during last ten days he had vomited large amounts of foul smelling pus and that he had also passed pus via the bowels.

*Read before the Nebraska State Medical Association, Omaha, May, 1916.

During the past week he had had five to six chills a day, some of them very severe.

Examination showed a young man very emaciated and septic in appearance; temperature 99, pulse 126, heart and lungs negative; marked rigidity of right rectus, more so in the upper quadrant. Very painful to light pressure, especially over upper portion of right rectus. The liver was much enlarged, coming a hand's breadth below the costal ridge, and was very tender to pressure. No blood examination was made. Diagnosis of abscess of the liver was made. The patient was brought to Lincoln to St. Elizabeth's hospital that evening. I wish to say that this man had been treated for malaria. The history shows you why.

Operation: He was operated at eight o'clock p. m. The idea was to institute drainage. A right rectus incision was made. On opening peritoneum a large amount of seropus escaped. The entire upper quadrant was one mass of adhesions. A perihepatitis was present; the liver adherent everywhere. My idea was to drain liver and gall bladder but by the time adhesions were broken up and we could see where we were, our patient had failed to such an extent that we quickly closed wound with drainage and put patient to bed. He recovered consciousness but died next morning at seven o'clock.

Post mortem report: The liver was found to be twice the normal size with large multiple abscesses. The gall bladder was full of pus. There was pus in the duodenum and stomach. At the lower end of caecum was found a walled-off abscess with appendix ruptured and attached slightly retro caecal. This showed primary seat of trouble. The specimens are here for your inspection.

Committee of American Physicians.

(For Medical Preparedness)

Through the cooperation of the Federal Government and a joint committee representing five great national medical associations, viz: the American Medical Association, the American Surgical Association, the Congress of American Physicians, the Clinical Congress of Surgeons of North America and the American College of Surgeons, plans have

been carefully formulated and matured for the purpose of ascertaining, organizing and utilizing our vast civilian medical resources in accord with the comprehensive plans for national defense which are now being carried out in all lines of endeavor.

The first duties which the Committee of American Physicians for Medical Preparedness specifically undertake are:

A. To aid the Medical Department of the United States Army and Navy by making a comprehensive inventory of the especial qualifications of individual civilian physicians throughout the country.

B. To cooperate with the National Committee of the American Red Cross in bringing that organization up to the highest standards of medical ideals and to aid in the organization of Red Cross units throughout the country.

C. The activities of the near future will include a very practical inventory of all civilian medical resources.

D. Research work and careful investigation along many lines relating to the subject of efficient medical preparedness, etc., etc.

The organization of the Committee of American Physicians for Medical Preparedness consists of a National Committee composed of: 6 ex-officio members, 30 members who were appointed by the joint action of the presidents of the American Medical Association, the American Surgical Association, the Congress of American Physicians and Surgeons, the Clinical Congress of Surgeons of North America and the American College of Surgeons; and a number of Associate Members of the National Committee representing important subjects closely allied to medicine.

State committees of 9 members for each state, 3 members for the territories (appointed by the National Committee) and a number of Aides for local work, to be appointed by the several State Committees.

EXECUTIVE COMMITTEE.

Albert Vander Veer
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and Members of Executive Committee.

Dr. John E. Summers of Omaha has been invited to become Chairman of the State Committee for Nebraska which is composed of the following members:

Dr. John E. Summers, Chairman.

Dr. W. F. Milroy, Pres. State Society during incumbency.

Dr. J. M. Aikin, Secy. State Society during incumbency.

Dr. C. A. Allenburger.

Dr. DeWitt C. Bryant.

Dr. A. F. Jonas.

Dr. J. P. Lord.

The first activity contemplated by the Committee of American Physicians on Civilian Medical Preparedness will consist in presenting to the Surgeons General a list of carefully selected, highly competent physicians representing all phases of medicine. From that list, from time to time, men will doubtless be invited to join the Medical Reserve Corps.

CHOREA AND TONSILS.*

Louis B. Bushman, M. D., Omaha.

During the last two years I have had several cases of Chorea or St. Vitus Dance referred to me either by internists or neurologists, and in each case I have found diseased tonsils or peritonsillar tissue to be the causative factor. The fact that improvement was

both positive and permanent after tonsillectomy convinced me that the tonsillar area has a more important bearing in this nervous disease than authorities seem to believe. The one leading cause of chorea, as described by most authorities, is rheumatism, some estimating it as high as 50 per cent. They claim that there is a certain common toxic etiological factor, which affecting the cortex, produces chorea, but affecting the joints gives rise to acute articular rheumatism. I will not mention any of the other causes assigned to this affliction, except to say that an infection of some kind is believed to be the main feature. The patients I have treated have ranged from five to eighteen years of age, all healthy otherwise. The duration of the disease has been from a few days to several years.

My most striking case was of a boy, 14 years old, who had been in swimming. The following day he had a sore throat, which continued for three days, when the objective symptoms of a typical chorea set in, and very shortly assumed the extreme movements so characteristic of this condition. His throat trouble disappeared as to pain or any physical suffering. When I examined his throat the tonsils were found to be large and submerged. In performing a tonsillectomy, about a teaspoonful of pus escaped from the peritonsillar area on either side. Absolutely no medical treatment was given, as I wished to observe the actual results from the operation alone. After a few hours the improvement was excellent, and in a week's time the boy was discharged as cured.

My second striking case was of a young lady 18 years old, who had been suffering for several years. She had been treated with medicine and osteopathy without results, and her physician thought the tonsils might be responsible for her condition. We performed a tonsillectomy, finding badly diseased tonsils, the crypts being loaded with infectious matter. The patient was put on a tonic and three weeks later was so improved that choreic movements could be detected only upon close observation.

My experience with chorea has of course been rather limited, and, although one should

*Read by Dr. Uren for Dr. Bushman, before Nebraska State Medical Association, Omaha, May, 1916.

be conservative in connecting diseased tonsils with this condition, the striking fact that all those coming before me showed a common throat affection and that all were cured after operation, led me to think that in such patients a thorough examination of the nose and throat should always be made.

DISCUSSION.

Dr. H. B. Lemere, Omaha—One point I would like to add in furtherance of this treatment, and that is, that it would be a good idea in these cases to save the tonsil and have an auto vaccine made from the tonsil itself, so that after the tonsil has been removed and if the condition still exists, the use of the vaccine will have a tendency to control any far removed infection.

The End Result of Tonsil Enucleation.*

Frederick F. Teal, M. D., Lincoln, Neb.

It takes a pretty good excuse to warrant writing a paper on a subject relating to the tonsil, as we have been surfeited with new tonsil theories, tonsil ideas, tonsil operative technique, and tonsil instruments for the past few years to the point almost past endurance. For all this, there are still some points about our experiences with tonsil work that are not satisfactory.

Twenty years ago every young doctor purchased the instrument of the guillotine type, the indications for operation at that time being tonsils large enough to fill the throat or obstruct breathing and interfere with swallowing. We now know that a person can carry around a pair of large tonsils and be perfectly healthy, not even suffering with sore throat; or a small buried insignificant looking tonsil, may be the cause of serious and even fatal conditions. While we have reached a point where indications for tonsillectomy are more well defined, we are still working in the dark in some respects. In order to improve my own ideas and knowledge on this subject and aid in the solution of, to my mind the most important question relating to tonsils i. e. when should tonsils be extirpated?, I have sent out about two hundred letters to patients on whom I have operated the past three years, using the technique which I started at that time. Those of you who have tried to get reports from patients by mail for a study of this kind will appreciate the difficulties of the situation.

Some never reply, others have moved away and do not get your letters. Others reply so inadequately that their information is valueless. I have summarized seventy of such reports received that may prove interesting to you as they have to me, and this constitutes the excuse for my paper.

My indications for operation are probably about the same as that of others working in this field. The profession twenty years ago was almost rent asunder over the mighty question when, and when not, to give antitoxin. About the same time another interesting question was being argued pro and con, the medical versus the surgical treatment of appendicitis. One group of doctors operated every case. Another did not operate any—until too late. These questions have happily been settled along well defined lines. We are just emerging from a similar condition in relation to the tonsils. First the question was, shall the tonsil, (a normal organ) be taken out, or shall it not. Later, and this was not long ago, grudgingly the poor tonsil was allowed to be sliced off; finally enucleation, for certain well defined conditions was advocated and the tonsil question bids fair to be settled, and on a rational basis just as these other questions have been. The old objection, "why take out a normal organ," has been answered satisfactorily. First, a tonsil is "normal" up to a certain age. As far as we know, it performs no function after anywhere from seven to fourteen years of age, and should be pretty well shrunk by that time. When diseased it performs no function, or at best very imperfectly. From then on you will see them in all conditions and sizes. Later on many of them practically disappear. Presumably a third of the adult patients coming to our office show practically no tonsillar tissue. As a final answer I will reply like the Yankee, by asking another. "Do we not take out the spleen, a kidney, stomach, thyroid and other organs?" All of these have a function, but we take them out when the surgeon's judgment decides that the retention of the diseased organ is detrimental to health or endangers life. Why consider a tonsil from a different standpoint?

The question that has been hardest to settle is, "What constitutes a diseased tonsil?"

*Read before the Nebraska State Medical Association, Omaha, May, 1916.

Supposing that such a tonsil is the cause of a systematic disturbance, or a well defined lesion of some kind contiguous to the throat. The fact that the tonsil crypts will show caseous, or purulent material teeming with bacteria is not conclusive evidence of their caustive activity as a disease factor. Tonsils of this character are frequently found in subjects apparently free from appreciable disease. Patients are encountered with serious lesions, who show innocent looking tonsils. Enucleation having been performed, some of these patients show almost miraculous improvement. In this connection I will quote just the once from Barnes.

"In the individual case the clinician is seldom in a position to say with certainty that a given systematic infection is of tonsillar origin. In these cases in which cryptic retention or suppuration is manifest or in which tonsillar inflammation is one of the features, he may proceed on the assumption that the tonsils are the source of the infection.

Often, however, when the tonsils are undoubtedly responsible, they show nothing on clinical examination that would suggest it. The very worst conditions of retention in the deeper parts of the crypts or of chronic abscess formation in the vicinity of the capsule, may exist in a small and perfectly normal appearing tonsil. Under these conditions it is only by a process of exclusion that the tonsils may be indicted as the possible offenders; for it must be remembered that they are only one of many different sources from which systemic infections may arise. The condition of the teeth and gums, the gastrointestinal and genito-urinary tracts, the ears and the nasal accessory sinuses are perhaps the most important to determine. After other sources of the infection have been eliminated as far as possible, the removal of the tonsils may be advised as a therapeutic measure even when clinical examination fails to show any pathological condition in them. The results of tonsillectomy justify this. Often the infectious processes show marked amelioration or even total subsidence after the operation."

If in addition to the information just quoted, we have troubles involving organs or

structures contiguous to the tonsil, such as running ears, chronic pharyngitis, laryngitis, etc., with or without attacks of tonsillitis, enucleation is justifiable and advisable. The offending tonsil may be large, with large mouthed crypts, or small and adherent to the pillars, partially buried and having a shredded appearance. Both types may be a cause of trouble, although the small ones mentioned, in my experience, are the worst offenders. I have taken out fair sized tonsils, which could not be seen until the mucous membrane which had grown over them had been split and the tonsils pulled through the opening. One such case suffered with recurrent attacks of rheumatism. This patient's throat had been examined and reported as having no tonsils.

In this series of cases there are seventy which I report. There is always some one to question results in those tonsillectomies in which an adenoid has been removed. Thirty-three were tonsillectomies alone and thirty-seven were combined with adenectomy. This latter group I have eliminated in the report that there may be no question as to the reliability of the facts deduced. Of the thirty-three purely tonsil operations, thirteen reported complete relief of all symptoms, one reported no relief of all symptoms.

The remaining nineteen reported from one symptom, upward, not relieved, comprising earache, sore throats, head noises, deafness, discharging ear, rheumatism, pigeon breast, chronic cough, stomach trouble and nervousness. Of the ten cases of the thirty-three having rheumatism, six were cured, two not cured and two relieved to a great extent. In analyzing these few symptoms not relieved I conclude that there are some conditions that it is well not to promise too much for. One of these is chronic ear troubles. My experience is that chronic deafness, head noises and running ears are helped very little by tonsillectomy. In children with recurring attacks of acute otitis media it is different. In this connection I have repeatedly observed for a number of months following tonsillectomy, trouble referred to the ears by the patient ranging from slight discomfort or fullness, to earache. Those difficulties usually clear up.

One case came back three months after tonsillectomy, having had otitis media in both ears and when I saw him, had a fully developed mastoiditis in one ear and beginning in the other. However it was finally concluded that the conditions at home had something to do with the matter, as he slept all winter with the door and windows tightly closed. While in the hospital for mastoidectomy the boy was apparently in mortal fear of catching cold from a draft, a point in his education handed down to him from his father, who in some respects was an extraordinarily intelligent man. Faulty selection of cases was undoubtedly the cause of failure in some; the cause of infection probably was to be found in some other part of the body. In a few cases the cause could be attributed to a small portion of retained tonsil tissues which contained one or two crypts. These cases were practically all done using dull dissection. Out of all cases operated the past three years, there was not one case of active hemorrhage. One case with high blood pressure, bled considerably in quantity but not seriously for a period of a week, but it was considered at the time to be a good thing and afterward proved to be so. The youngest patient operated, was two years, the oldest fifty-eight. Children are done under ether, all others unless some other indications exist, under novocaine. I recently successfully did a tonsillectomy under novocaine on a boy of eleven.

One of the objections heard against tonsillectomy, is that it is apt to spoil the voice. In only two cases of the series was there any anatomic defect of consequence and these did not affect the voice. In each instance the uvula was affected in such a way as to produce an anatomic deformity, but apparently had no effect on either voice or speech. In the seventy replies not one voice was harmed. Many of them reported the voice improved, one patient even going so far as to say that he could sing now and that he never could before! One that reported unfavorably, indicated that there was possibly some nasal condition altering the sound of the voice, his father saying that he seemed to get short of breath when he talked. The second gets

hoarse when he talks for any length of time. The conclusion I have arrived at is that impairment of the voice or speech comes either from the severing of certain muscles, or adhesions, both of which results seem almost inexcusable under our present technique.

The most consistent gain in the seventy was a decided benefit to the general health which was reported in fifty-nine. The other eleven reported either no better or that their general health was good before operation. Some of the systemic improvements were rather remarkable, examples of which I will quote later.

Of the symptoms relieved are noted the following—almost every case of sore throat, high blood pressure, enlarged cervical glands, headaches, kidney lesions, recurrent attacks of rhinitis, pharyngitis, rheumatism, hoarseness, trouble in voice, loss of weight (gaining as high as twenty pounds in six months) enlarged thyroid, discharging ears, deafness, irritability, cystitis (chronic), poor appetite, general depression of whole system, smothering sensations, head noises, autointoxication and croup. With the citation of a few cases I will bring this paper to a close.

CASE ONE—E. L., age 30, teacher in State University. Came to office for recurring sore throats, from which he was never entirely free. Had quinsy almost every winter for a number of years. He also suffered at times from rheumatism. A very annoying symptom for which he had not consulted a physician was a cystitis, which required him to empty the bladder as many as twenty times a day. The tonsils were enucleated under novocaine with entire relief of all symptoms except the cystitis and that has been greatly improved. In a letter answering my query as to his condition he writes that he gained sixteen pounds or 1-7 his total weight in four months. Has not been sick a day the past six months. He claims his mental efficiency has improved 100 per cent. Not the least interesting feature is the improvement in the voice. He formerly sang in a choir and was obliged to quit four years ago. Recently a music teacher called his attention to the improvement in his speaking voice and tried out his singing voice. He

sang for two hours without tiring and found his range two full tones higher than formerly. Previously ten minutes was the limit of his singing endurance.

CASE TWO—M. S. M., age 35, housewife. Had diphtheria fifteen years ago with no severe sore throat since that time, although she was subject to more or less throat irritation especially on singing. She gradually began to feel tired out and lacked her usual buoyancy. Six months before my observation she developed an enlarged cervical gland as big as a filbert. This gradually increased in size and grew tender to touch. Headaches of a severe character became frequent. Attacks of dizziness every day especially on moving quickly and continuing more or less constantly was an unpleasant and distressing symptom. Her general health gradually grew worse, evidenced by a lack of endurance, intestinal fermentation, slight bloating of the face at times, falling out of the hair together with disturbed scalp condition. Numbness of the left arm was almost constant. Blood pressure was 170.

Examination of kidneys showed she was throwing out an excess of water, with slow elimination of urea; albumen and casts. The whole condition was one of profound intoxication. The prognosis as far as further physical activity was concerned was doubtful. She had always been athletic, played tennis and engaging in outdoor life. The opinion of her physicians was that these activities must be stopped. On the advice of her physician and on my own judgment, although there had been no sore throat and there was nothing about the tonsils of a suspicious nature, except that they were small and partially buried, I enucleated them. The change of this patient in a year's time is hardly believable. Practically every symptom of consequence has cleared up. Her headaches have left, head clear, scalp disease disappeared, intestinal distress gone, glandular swelling almost left. Her blood pressure remains around one hundred and forty, and she swims, runs and plays tennis without any distress whatever. She has gotten back to her normal weight, which had started to increase and was above normal by ten pounds. Not the

least improvement reported is in the voice. She sings much easier and without tiring. The quality is if anything improved.

DISCUSSION.

Dr. Banister, of Omaha—I was sorry not to hear the opening of the doctor's paper, but I heard enough to get an idea of the trend of his remarks, and I certainly can endorse all he says about the after effects of increased mentality of a person suffering from bad tonsils. I have just recently had a marked condition of that sort in my own family. I had a son who had lost interest in his school work, without apparent reason. He at times had a very little sore throat, and finally I examined his neck and discovered that he had quite a large lymphatic on one side. We removed the tonsils and from that time on I never saw such a change in any individual. He at once began to work with vim, and insisted himself in getting a private instructor in mathematics, and at his earnest request we sent him to Washington to a school that prepares young men for college.

Now as to other after results. We hear the complaint made that there is too much traumatism; that there is danger of hemorrhage. In some cases we have met with those conditions, but I think in the comparatively recent line of operation this danger would be removed. I must confess that I for a long time adhered to the dissection method of operation, but now I have become a thorough convert to the other side and prefer to operate that way, and that is the Beck method of operating. The great advantage of the Beck method is that without the slightest dissection you remove with a snare the tonsil. There is very little hemorrhage because we do not cut any blood vessels. In most of our other methods the pillars are injured, but in Beck's method you work the tonsil into the snare with one finger to the outer side of the anterior pillar and press the tonsil into the snare thoroughly, engage it securely, and a slight pull brings away the tonsil. I have never seen the slightest hemorrhage, and I have seen a great many operations done with this method. Another great point is this, that under the old method the patient suffered from very sore throat following a tonsillectomy, whereas in the Beck method the soreness of throat afterwards is almost disregarded in your prognosis. I had a case of tonsil enucleation, and the next day following the operation he said, "You did not do anything on this side did you Doctor, this side is not sore at all, but the other side is very sore?" Well, that was the side I had done the Beck, and on the other side I had to do a little dissection in addition to the Beck. We see that right along in our practice, and I believe that if the Beck method is used, that all these symptoms—sore throat, hemorrhage, and all the bad conditions that usually follow, will be in great part removed. I think the after effects on the voice too, are, as the Doctor said, either from the severing of muscles or adhesions. Dr. Lemere was for a long

time a Beck devotee and I was a dissection devotee, but I became converted.

Dr. Howard, North Bend—Did you ever have nervous disturbance follow the removal of tonsils? I had a case come under my observation, a young woman who two weeks afterwards developed insomnia and bad case of nervousness. These eventually wore off within two or three weeks. The symptoms suggested some disturbance of the thyroid.

Dr. Teal, in closing said: I have not very much to add, Mr. Chairman. I have tried all the methods I guess that anyone has in taking out tonsils, and I finally determined that the method that suits each operator, the means by which he can get his tonsils out, is the one for him to use. I tried out the Beck method and I found there were objections to it, one of which the Doctor mentioned, that was that there are some cases you have to go back and dissect out the tonsil eventually, and I am perfectly satisfied with the method I use because I get them out very quickly, and doing most of them under novocaine the patient can go home in a very short time.

Diagnosis of Pituitary Tumor.*

Jno. B. Potts, M. D., Omaha, Neb.

The symptoms naturally fall into two classes:

- a. Pathological changes due to internal secretions of the pituitary gland.
- b. Effects of pressure.

The pituitary gland is divided into two lobes, the anterior and posterior. The secretion of the anterior lobe has a marked effect upon the growth of the skeleton; the posterior upon carbohydrate metabolism.

Cushing in experimenting on dogs, found that by removing a part of the anterior lobe, the growth of the skeleton was stunted, while removing part of the posterior lobe was followed by lack of sexual development, sluggishness, roughened hair, dry skin and adiposity. Bearing this in mind, we find that we can classify the kind in man into three classes:

1. Giantism.
2. Froelich (infantile).
3. Mixed or combined.

Type one may be pronounced from childhood, resulting in a giant without other pathological developments, and the individual live an otherwise normal life. The gland or its secretions may be apparently normal up to 15 or 20 years of age, and then become over-active, in which case the long bones, especial-

ly the more distal ones; these being the last to ossify, are most affected. The head enlarges, especially the lower jaw (prognathism).

Type two when seen in children, is usually also associated with a deficiency of the anterior lobe and also of some pathological condition of the thyroid gland. The result is a persistent infantile type and marked adiposity. The posterior lobe becomes affected later in life, the usual time being the age of sixteen to twenty-five. There results adiposity, loss of hair on the pubes and body, in women the menses cease, dry skin, tapering fingers, marked increase in sugar tolerance. While the normal individual can seldom eat more than fifty grams of glucose without glycosuria, a well marked case of pituitary disorder can assimilate from three to four hundred grams without a trace of glycosuria.

Type three is a combination of a. and b. We may have a giant who later develops marked deficiency of secretion of the gland, in which case we have type two grafted upon the former.

In the cases that I have seen in which the tumor had become enlarged, there was a marked lowered condition of mentality and extreme weakness of the lower extremities.

Symptoms due to pressure are encountered only if the gland enlarges either by hypertrophy, cystic degeneration or tumor. This increases the intra-cranial pressure and causes severe headache, frequently paralysis of some of the ocular muscles, diminished reflexes, and by pressing upward on the optic nerve, atrophy. As the optic commissure lies directly above and forward, it is the least protected and is usually first affected. So we have blindness of the temporal half of one or both eyes before the external fibers which supply the temporal half of the retina are affected. The fundus of the eye appears normal except for the atrophy, there being no hemorrhage, exudate or swelling of the disc.

The pressure usually causes marked changes in the cranium, the cortex may be thin, the sutures slightly parted, and the sella enlarged. The latter frequently fills the

*Read before the Nebraska State Medical Association, Omaha, May, 1916.

sphenoid cells, the posterior and anterior clinoid processes are absorbed from pressure, the features become large and coarse, and the hair on the face very scanty.

Roentgen plates.

Melchoir. Crossley.

Johnson. Poore.

Report of four cases:

J. J., age about 21. Was lead into office March, 1913. Complained of loss of sight and headaches. Height about six foot seven. Well nourished but not fat. Very large head with undershot jaw. Forearms and lower limbs out of proportion in length to rest of body. Vision, hand-movements at two to four feet, unable to obtain fields. Eye grounds normal except for atrophy of optic nerves. Reflex of lower limbs absent. X-ray showed very large tumor in the sella turcica.

Family history; says both father and mother living, and three brothers. None of them more than ordinary height. Began to grow at the age of sixteen, was robust and strong up to about a year ago, when strength and eye-sight began to fail.

Hajek's operation performed after a preliminary middle turbinectomy. Decompression of the sella made.

Recovery of strength and sight very rapid. Patient's vision returned so that he was able to read by the end of the week. Headaches ceased immediately after the operation and regained physical vigor very rapidly. During the summer reported that he was able to do some work on the farm, and vision did not bother him. Later the patient fell into the hands of osteopaths and quacks in Denver. His sight was entirely lost, and at last accounts he was still living but blind.

Miss D. M. Age 40. Fair, medium height, quite fleshy. Eye-brows and eye-lashes absent.

Complains of headache and loss of sight. Trouble began ten years previous with headaches, but vision not impaired until about a year ago. Ceased to menstruate shortly after first noticed trouble. At that time was dizzy and extremely nervous.

Fundus normal except for beginning atrophy of outer half of each nerve. Complete bi-temporal hemianopsia. Sugar tolerance three

hundred and fifty grams. X-ray shows anterior horns of sella gone, posterior walls gone, and sphenoid cells almost obliterated by tumor the size of a walnut.

Patient refused operation and vision varied from better to worse for a couple of years, then gradually improved until she now has vision of 20/50ths and 20/30ths, with very marked contraction of temporal fields.

G. W. C. Age 29. Height five feet, eight. Moderately stout. First seen June 5th, 1915.

Complains of loss of sight and headache. Pain began about five years previous and eyes have been troubling him somewhat over a year. Was much fleshier three years ago than he is now. Nothing special in family history.

Hair scanty. Fond of sweets and took three hundred fifty grams of glucose without glycosuria. Vision right eye, 20/20ths, left eye, 20/100ths.

Patient disappeared and was not seen until June 2, 1915, at which time the vision was practically nil. Other conditions about the same except that was suffering from extreme weakness. X-ray showed the sella turcica to be about the size of a half dollar. Operation June 16, 1915.

Operation through the septum by Hirsch method, with free opening into sella and incision into the tumor with evacuation of considerable amount of mucoid material.

Physical condition and vision improved very rapidly so that by the 30th he was able to go around town in practically normal condition. Vision right eye 20/30ths, left eye 20/200ths.

There was a tendency for the headache to return accompanied by loss of vision. Patient returned after some weeks and I found it necessary to pass a small catheter through the natural opening of the sphenoid cells into the cyst, with evacuation of more fluid. This had to be repeated every week or two. Patient went to work as operator at Concordia, and I put him under Dr. Robinson's care to continue with the catheter when needed. After several weeks he suddenly developed meningitis and died about December 5th, 1915. Postmortem showed a large carcinoma with two lobes, one occupying the sella and

the other extended out under the left temporal lobe of the brain.

L. C. P. Age 33. Height six feet, eight. Adipose. Large head, undershot lower jaw, hair scanty.

Complains of loss of vision and headache. Right eye, no light perception, left eye, hand-movement at two feet only to nasal side. Family history not significant. Trouble began seven years ago at which time he became fat, and began to notice that eyes were blurry at times associated with intense headaches.

Fundus; atrophy of both optic nerves. Carbohydrate tolerance three hundred fifty grams of glucose plus. Marked weakness. Unable to walk except when supported. X-ray showed large tumor of the pituitary gland (Oct. 30th, 1915).

Hirsch decompression with incision and evacuation of considerable amount of fluid.

Sight and bodily vigor returned very rapidly. Was able to read newspaper on third day after operation. Insisted on leaving hospital, and stayed with wife across the street on the fourth day. Went home the sixth day in spite of my protest, at which time his vision was hand-movements right eye, and practically normal in the left. Jan. 9th, 1916, wrote me that health was good and was following his occupation as auctioneer.

DISCUSSION.

W. H. Mick, Omaha—If you will look carefully in the case of the man with hydrocephalus you will find that his sella has decidedly fallen. This man was twenty-two years of age and looked sixty. The only thing he complained of was protruding eyeballs. The other skull does not show more giving away than in the case above, but this latter case is younger, feeble minded and blind.

J. M. Mayhew, Lincoln—In this class of cases the age limit is far beyond what formerly has been supposed. Some of these cases do not show changes from pituitary tumors or secretions until rather late in life. I remember one case, a woman whom I saw not long ago, where primary appearances began at the age of twenty-eight; cessation of menstruation, adipose sexualis, and the loss of hair, drowsiness and stupidity. On looking up some records I discovered that these cases may show marked change at any age. In a series of cases which I saw in the Massachusetts General Hospital two years ago, there were many which they fully determined were not pituitary tumors, but were merely changes of the pituitary body, not infrequent at ages between thirty and

forty. These cases were not discovered by X-ray and in some of these the X-ray findings were practically negative. I think that the investigation of the eye grounds and vision and the working out of sugar tolerance and possibly the X-ray would show a great number of cases that are now overlooked. Many of the phenomena of pain which are not explainable clinically unless you investigate carefully may be found to be due to changes in the pituitary gland.

John B. Potts, closing:—I thank Dr. Mayhew for bringing out these additional points in this paper and I think he is absolutely right. If we would keep the foregoing facts in mind and be on the alert to discover the early symptoms due to disturbance of this secretory gland, we would find that there are a good many more cases than we at present suspect. No doubt, if careful study were made many children that show a mal-development would be found to have some disturbance of the internal secretions.

The Inadequacy of Privately Fed Medicine.*

Inez C. Philbrick, B. S. M. D., Lincoln.

The history of medical progress records a growing sense of professional inadequacy on the part of profession and laity, and of effort directed toward its correction. Necessarily in pre-scientific days progress was slow. Early acceptance of disease and health as imposed from without by malevolent or beneficent agencies precluded any general development of a sense of personal or professional responsibility for the futilities of the healing art. Nor did empiricism with its medley of truth and error offer either incentive or opportunity for the search for new facts. Isolated discoveries of vast moment attest that most valuable attribute of the human mind, skepticism, which in every age has led investigation.

Scientific medicine, beginning in any adequate sense with the work of Virchow and Pasteur in the middle of the last century, a time of intense general scientific ferment, has developed synchronously with vastly increased transportation facilities; opening new lands to settlement; the organization of industry on the factory basis, with its outgrowth of occupational disease and accident, and as a part of the speeding up policy of competitive industry, demand for increased efficiency of workers; a change from a rural to an urban environment for nearly one-half of the population; an appalling increase in

*Read before the Nebraska State Medical Association, Omaha, May, 1916.

poverty; and along with this the growth of the social conscience, which is democracy, demanding for the individual not only the right to live, but the right to health.

Tremendous demands have been put upon medicine, its adequacy has been tested to the utmost and found wanting, as attest the various supplementary health agencies today in operation or projected. That medical inadequacy has been more from the art side than from the scientific, from the practical more than from the theoretical, that there has been more of knowledge than of application of that knowledge to human needs, must be ascribed to conditions governing medical practice rather than to any unusual inertia of the medical mind.

Two years ago, in a paper read before this society, I discussed in detail and at length the inherent inadequacy of privately-feed medicine, the determining principle in this inadequacy being competition. It has seemed to me of value to consider at this time the various supplementary health agencies already in operation or planned, to determine if they be free from or exhibit the evils and weaknesses characterizing privately-feed medicine, and if they utilize those methods imposed by modern conditions.

The past few decades have revolutionized knowledge of the causation of disease and of means necessary to its cure. Today are demanded as routine procedures, diagnostic methods which require much time, expensive equipment, accuracy of technical knowledge, delicacy of manipulation, trained interpretation. Present demand is for a highly organized system of medical practice with minute specialization, limitation of function and co-operation. Contrariwise, present practice is still in theory on the amoeba plan, presupposing the ability of any part of the medical mass, equally with any other, to procure, assimilate and make contracts with the environment. No physician today can acquire, assimilate, and apply to the prevention, diagnosis and cure of disease any considerable part of medical knowledge. Nor can he command facilities for efficient work. The other day, in cleaning my attic, I was strikingly reminded of the enforced changes in my

practice in two decades; and I am certain my experience is not exceptional. Unopened vials of tropaeolin, congo red, methyl violet, Canada balsam; a number of Levis' perforated metal splints; Thoma-Zeiss haemocytometer and von Fleischl haemoglobinometer; silver chloride dry cell and acid cell galvanic batteries, recalled the days when I, not from choice but of necessity, to eke out income, in my inept way, stained and mounted specimens, treated fractures, counted red and white blood cells, and estimated hemoglobin other than by the Tallqvist paper and had not relegated the use of the electric current to the electro-therapist, who alone can develop and bring to bear its therapeutic virtues. My office table, as I am sure does that of most general practitioners, bears witness to the abandonment of the attempt to more than keep abreast in a general way of medical progress. Two general weeklies replace a former half dozen more special journals. And in these many of the articles are so technical as to make the reading of only conclusions the part of wisdom.

Efforts to remedy professional inadequacy have proceeded along two lines—improvement of service and more effective application of service. Impelled to efforts at self-preservation from the assaults of Christian Science, faith healing, osteopathy, chiropractic (these star witnesses to medical inadequacy), and with, doubtless, in less degree, an altruistic motive, the profession has adopted increasingly higher standards of medical education, preparatory and technical. Medical schools are decreasing in number, and gaining in quality, as is true of medical graduates. We may safely trust that effort along this line has gained sufficient momentum to carry it over to the standard set by the Committee on Medical Education of the A. M. A.—state medical education—with state schools providing that adequate equipment impossible to privately endowed schools, more largely free from the temptation to sacrifice standards to numbers, with salaried, full-time professorships.

Of supplementary health agencies instituted for the more effective application of medical knowledge must be considered first that

having as its object the prevention of disease—the public health service, national and local, including medical school inspection. Instituted in response to the recognition of control as the essential factor in prevention of disease, its effort was first directed toward control of the individual, through compulsory examination, isolation, and enforced treatment, as by vaccination, and later, toward control of environment, through drainage of soil, destruction of parasites, factory inspection, building regulations, etc., etc. Today we already see the beginnings of effort toward control of heredity.

Established chiefly for the protection of trade interests and of the better-to-do classes of the community from the ravages of epidemic disease, the public health service has grown increasingly altruistic and of vastly greater social significance. In so far as it has been adequately supported and free from partisan political alignment, allowing of freedom of action, unrestricted by expedient subservience to individual persons or interests, its workings have been eminently satisfactory. Already it has achieved results of incalculable value. When, with the general institution of non-partisan government it shall have been brought under the operation of civil service, the minor evils which it has exhibited will disappear. Today, no one desirous of medical progress would advocate limitation of the public health service, but rather, the extension of its field and the enlargement of its activities. And, in so far as it goes, the public health service, supported by taxation, of general application, under government control, is state medicine.

Among supplementary health agencies, next come various forms of health insurances, necessitated by the economic inability of a large part of the population to avail itself of medical examination and care. All of these forms, whether they be private, (as through lodges, fraternal orders, etc.), supported by dues of members, and applying only to these; or contractual, between state and private organizations, applying only to certain economic classes, state supported but privately administered, as in England; or as proposed in the health insurance measures

outlined by the committee on health insurance of the American Association for Labor Legislation, such measures to come before the coming legislatures of N. Y., N. J., and Mass., support to be divided between workers, employers and state, and the details of medical organization and administration left to the medical profession—all exhibit certain evils in common-class legislation, friction between privately employed and state employed physicians, increased administrative cost through multiplication of boards and officials, and lack of specialization, censorship and control of medical service.

Per capita contract, or contract by visit (as operative in lodges, etc.), gives, of necessity, cheap, inefficient and dishonest service. Unlimited choice of physicians, as in France, has led to inconceivable abuses. Limited choice, as in England, has given rise to similar evils, though of lesser extent. Under all these forms of health insurance the physician is employed as an individual, rather than, as would be the case under state medicine, as a salaried member of a specialized staff, working in constant association and co-operation with fellow members, with time rotation in service, his work censored, and his relation to the public impersonal. While the English system, the nearest existent approach to state medicine, has proven itself for profession and public far better than the old privately feed system, already leading members of the British profession are advocating the wisdom of its complete socialization.

The recent introduction of health inspection into many large industrial establishments, medical service being performed by physicians salaried by employers, has proven the inability of privately feed medicine to reach a large part of the industrial population until it be more or less incapacitated by disease. Such inspection is instituted primarily in the interests of employers, with the object of increasing efficiency and profits; and often works extreme hardship to the physically defective worker, through loss of employment or transfer from better to that which is less well paid.

Of plans for bringing the best medical ser-

vice within reach of persons of moderate means, that of most recent and general interest is proposed by no less distinguished a member of the profession than Dr. Richard Cabot of Boston, in the columns of a popular magazine—that of the voluntary or institutional lay group, in control of hospital facilities, and employing a salaried staff of medical specialists. This plan, Dr. Cabot frankly admits to be a temporary buffer against the shock of the coming of state medicine until such time as government shall be administered by the qualified rather than the unqualified. In his distrust of state medicine, Dr. Cabot seems to me unappreciative of the relatively very creditable record of governmental administration of public utilities, the postal service, education, as well as of public health. Indisputably, in the buying of medical service, as in commercial buying, the group can bargain more advantageously than can the individual, and the larger the group the more advantageously. However, to assemble voluntary groups sufficiently large to serve any considerable part of the community, possessed of sufficient funds for physicians' salaries and hospital maintenance, with any promise of permanency of membership, and with the inevitable prospect of friction between various groups, seems to me to offer insuperable difficulties. Nor under the workings of the limited group would best service be obtained. It is not the opinion of one specialist in a selected staff that is desirable, but consensus of specialist opinion. The logical outcome of Dr. Cabot's plan is the community group, working through its community group of hospitals—general, contagious diseases, maternity—it being the only possible group combining permanence, control of adequate funds, authority, and representation of the interests of all.

Further convincing proof of the inadequacy of privately-feed medicine along all lines is found in the conditions for effective service demanded by specialists in various fields. In general, all emphasize the need of early diagnosis and of continuity of treatment, these being impossible of attainment under the present system with its private fees and lack of control. It is possible for the patient,

whether from financial inability or inertia, to postpone his visit to the physician until alarmed by the signs of advancing disease. And having presented himself for examination, and treatment having been begun, he is advised by well nigh every acquaintance to seek some other medical adviser; and if possessed of an income worth while, he encounters at every turn, ready to snatch him, a hungry horde of medical vampires, made vampires by the system under which they work.

In a recent symposium on tuberculosis before an Eastern state medical society it was the consensus of opinion that adequate handling of the tuberculosis problem called for notification and free institutional treatment—dispensaries with visiting nurses for ambulatory cases, sanatoria for incipient bed cases, hospitals for advanced cases; improvement in industrial conditions, eradication of poverty, money and more money, and authority. I ask, what system short of state medicine can measure up to such requirements?

Dr. Wm. F. Snow, general secretary of the American Social Hygiene Association, who presumably voices advanced opinion as to the prevention and cure of venereal disease, names as essential conditions for its eradication; notification, provision of free public health laboratories for bacteriological and serological diagnosis, ample facilities at public expense for clinical diagnosis and advice, free treatment of ambulatory cases, free hospital care for advanced cases, the compulsory examination of large bodies of men, as in schools and industrial establishments, and in all places where food is handled, and the following-up of such cases by social workers. As necessary general measures are named, public education, provision by the community for ample facilities for wholesome recreation; reorganization of industry; elimination of alcoholic drinks. What part, may I ask, has privately-feed medicine in such a program?

As regards cancer, hope of discovery of causation, and of consequent prevention, rests in the research of salaried specialists. In cancer early diagnosis is above all imperative. Its accepted treatment—surgery—with the fee, the cost of hospital care, and

(Continued on page 64)

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NOTICE FROM OUR STATE SECRETARY.

Our membership August 1, 1916, is 1,025. We own our official Journal, The Nebraska State Medical Journal, and if any member does not receive a copy each month, your State Secretary should have immediate notice to make sure that your name and address have been correctly given.

Your dues to the State Association, which formerly paid your subscription to The Western Medical Review, were by our House of Delegates, at our May, 1916, convention, set apart to pay your subscription to The Nebraska State Medical Journal. Your continuance as a subscriber to The Western Medical Review is optional with you, since payment for it is between you and its publisher.

Joseph M. Aikin, State Secretary.

The Journal desires to acknowledge with thanks a large number of letters of congratulation from Nebraska physicians and Medical Journals in many parts of the country. The advent of the Nebraska State Medical Journal has been heartily welcomed by the profession of the state. It is hoped that the Journal may be made increasingly useful.

Case Records.

There is probably no more important factor in the success of the average physician than accurate and complete case records. Too often in the routine of a busy practice case records are neglected. In permitting one's self to fall into the habit of failing to record the history, physical findings, etc., of a case, is to place a burden on one's memory which is unnecessary and unfair. With complete records, cases may be reviewed and studied and the physician stimulated to closer and more accurate investigation. Definite habits of thought and definite methods of routine case examinations are formed. An accurate record of a patient, who returns two years subsequent to an examination, will save the physician hours of time and render him of far greater value to the patient. The time spent in making definite records is more than repaid merely from the mental relief incident to carrying the case in mind.

Poliomyelitis in New York City.

At the end of five weeks of the New York epidemic of poliomyelitis, the health department reports a total of 5,168 cases of which 1,143 have been fatal. There are also scattering cases in a number of New England and Middle State towns. According to the bulletins of the New York department of health every effort is being made to ascertain the carrier of the disease. To this end the aid of the Public Health Service of the government has been enlisted as well as prominent pathologists and medical men from different parts of the country. At the present writing the epidemic shows no signs of abating and in virulence has not been exceeded in medical annals in years. Special effort is being made by the Public Health Service to prevent the spread of the disease to other states. No child is allowed to leave New York City without a certificate from a Public Health surgeon. A few important facts seem to stand out in the study of the New York epidemic.

First: That the stable fly (stomoxys calcitrans) reported by Flexner a few years ago to be the carrier of the infection has been practically ruled out.

Second: Filth may play a part in the spread of the disease, but it is certainly not a prominent factor.

Third: Under nourished children seem to be predisposed to the infection.

Fourth: Direct contact appears to be the chief mode of the spread of the disease.

The present investigation of the causative factors will include a careful survey of insect life of the city and it is to be hoped that the concentration of scientific effort will speedily bear fruit not only for the cessation of the epidemic in New York City but for the protection of the entire country. Not only is the death rate in the present epidemic excessively high but the paralytic sequelae appear to be unusually large.

Among the newer remedies proposed for the treatment of the condition is the intraspinal injection of 1 to 1,000 adrenalin. No conclusive reports are available as yet on the results of this treatment, but preliminary observations seem to indicate that its effects are beneficial. The experience of Nebraska physicians a few years ago particularly in York and Polk counties will lead all to be especially on their guard this season. Suspected cases should be immediately isolated and an absolute quarantine enforced.

The United States Army Medical Reserve Corps.

In order to secure a reserve organization of medical men, who will be ready upon call to assist the regular medical corps in time of national emergency, there has been established by the war department a reserve corps of professional men containing many of the most prominent physicians and surgeons of the nation. These individuals are commissioned first lieutenants in the medical reserve and are placed upon the non-active list, without pay, until such time as national emergencies may require them to be called into active service.

Just at present quite an interest is being taken in this matter by the patriotic members of the profession all over our country, and many applications are being made to the surgeon general of the army by men, whose names are well known in the profession, for admission into this reserve.

Dr. J. M. Banister of Omaha, Colonel U. S. Army (retired list) has charge of the examinations for admission to the medical reserve in the case of candidates in Nebraska and neighboring states, and any information upon this matter will be gladly furnished by him upon request.

Increase in the Medical Department of the Army.

The recent act of congress increasing and reorganizing the regular army has had quite a marked effect upon the medical department. While the enlisted personnel of the medical department has been greatly increased, the number of commissioned officers of the medical corps has been nearly doubled. Before the passage of the act, referred to, 444 commissioned officers of the medical corps were allowed by law. In consequence of the provisions of the act, when the total increase of commissioned officers in this corps shall have been consummated, the medical corps will consist of considerably over eight hundred officers of all grades, from colonels down to first lieutenants.

As a result there will be very rapid advancement in rank for the present members of the corps below the grade of colonel, and a large increase in the number of first lieutenants will be authorized. The standard of admission, however, will in no sense be lowered.

Applicants for admission to the medical corps must be between twenty-one and twenty-nine years of age, must be graduates of medical colleges of high standing, and must have served as hospital internes for one year to be eligible.

NOTES.

Dr. J. M. Aikin of Omaha spent his vacation at Lake Okoboji.

The Elkhorn Medical Society met at Norfolk, Nebraska, August 3, 1916.

Dr. A. F. Jonas of Omaha has returned from a short trip to Madison, Wisconsin.

The Dodge County Medical Society gave a dinner at Fremont, Nebraska, July 27, 1916.

Dr. Frank Jensen of Newman Grove has taken into partnership Dr. C. A. Meyer of Omaha.

Dr. E. L. Brush of Norfolk spent the month of July in Boston taking a course in physical diagnosis under Cabot.

Dr. A. A. Johnson of the University of Nebraska College of Medicine is taking a trip to the Pacific coast.

Dr. E. D. Banghart of York, Nebraska, is now associated with Dr. W. H. Mick of Omaha, Nebraska, and will specialize in X-ray work.

Dr. George Pratt of Omaha has returned from Chicago where he was doing post graduate work in the Cook County and Presbyterian Hospitals.

The Missouri Valley Medical Association will meet in Omaha, Nebraska, September 21-22, at the Fontenelle Hotel. Extensive preparations are being made for the entertainment of the visitors.

Dr. Samuel E. Yoder, for twenty-five years a well known physician of Wymore, died in Lincoln at 9:00 p. m., Friday, August 4, 1916, following an illness of eight days. He is survived by a wife and two children. Doctor Yoder was fifty-two years of age.

Dr. A. P. Fitzsimmons, formerly of Tecumseh, who has been for several years in the government employ in the Philippines has just been appointed treasurer of the Islands by the governor general. This position carries great responsibility which Dr. Fitzsimmons' Nebraska friends realize is well placed.

Several Omaha physicians attended the Norfolk meeting of the Elkhorn Valley Medical Association, August 3, 1916. Among the number were Drs. Milroy, Lemere, Young, Jones, Lord, Overgaard, Quigley and Stokes. Dr. Stokes was accompanied by Mrs. Stokes. Dr. Milroy was the guest of honor. The scientific program was held in the shade of a perfectly arranged group of trees at the Country club. The next meeting of the Society will be held at Fremont.



DR. S. C. BEEDE of David City.

In the recent death of Dr. S. C. Beede of David City, central Nebraska loses a distinguished physician and surgeon. Doctor Beede was well known to the profession of the state and his scientific attainments and accomplishments brought him great honor. Doctor Beede's death came at the end of several years of patient suffering. Many physicians of central Nebraska looked upon Dr. Beede as their surgical mentor and his loss is keenly felt. The sympathy of the entire profession is extended to the family. It is a matter of great regret that Dr. Beede could not live to see his son engage in practice with him. He leaves two sons, one of whom is in his junior year in medicine.

The Medical Association of the Missouri Valley will hold its annual meeting in Omaha, September 21-22, at the Fontenelle Hotel. The last time this Association met in Omaha, one year ago last March, the attendance reached the highest mark and the program received universal commendation. The entertainment provided by the Omaha profession was most pleasing to the visitors. It is anticipated that the present meeting will establish a new record for the Society. Dr. Robert Morris, the celebrated New York sur-

geon who is a trenchant writer on sociological subjects has been asked by his classmate, Dr. H. Gifford, to be present and give the oration on surgery. Dr. Walter L. Bierring of Des Moines will give the address in medicine. Other men of equal note will appear on the program.

Dr. Haven Emerson, health commissioner of New York, has invited a number of distinguished pathologists to meet some pathologists and medical authorities of New York City for discussion of problems connected with the prevailing epidemic of infantile paralysis. For the conference, which will begin on August 5, the Board of Estimate has appropriated \$2,000. Those from a distance who are expected to be present are: Dr. William H. Welch, professor of pathology, The Johns Hopkins University; Dr. Victor C. Vaughan, dean of the medical school of the University of Michigan; Dr. Milton J. Rosenau, professor of preventive medicine and hygiene, Harvard University; Dr. J. W. Jobling, professor of pathology, Vanderbilt University; Dr. Paul A. Lewis, Henry Phipps Institute, and professor of pathology, University of Pennsylvania; Dr. C. C. Bass, professor of pathology, Tulane University; Professor Theobald Smith, Rockefeller Institute; Professor John F. Anderson, New Brunswick, N. J., former head of the hygienic laboratories of the U. S. Public Health Service; Dr. Richard M. Pearce, professor of experimental medicine, University of Pennsylvania; Dr. Francis W. Peabody, Peter Brent Brigham Hospital, Boston; Dr. Ludwig Hekton, professor of pathology, University of Chicago, and director of the Memorial Institute for Infectious Diseases; and Dr. John G. Adami, professor of pathology, McGill Medical College.

On the Removal of Medical Appointments From the Realm of Politics. *

Harold Gifford, M. D., Omaha.

I will not take up your time rehearsing the evils of the prevailing plan of filling state and municipal positions with men selected on account of their political influence or from motives of personal friendship. The abuses and absurdities to which it leads are only too ob-

vious. The question is, do we as medical men intend to lie down and allow important medical positions to remain in the general ruck of political loot? I will admit at the start, that there may be some doubt as to whether it is worth the while for the profession to try to arouse the laity to a proper pitch of self preserving indignation with the present methods. From a selfish standpoint it is certainly not worth our while. The medical positions in the gift of cities and states are so comparatively few and unrenumerative that the bulk of the profession has very little direct interest in the way they are filled; and when we consider the long uphill fight which we have had, to show the public which side its bread was buttered on in the matter of medical education, it may well be doubted whether we are called upon to take up another burden in the shape of a fight for a rational system of medical appointments. Personally, however, I believe that we should do so. Besides the call of altruism, and race-preservation which is at the basis of all work in social medicine and hygiene, there is the legitimate motive of desiring to see our profession worthily represented by its public officials. Moreover, if we do take up this fight the reproach can not be flung in our faces as it has been in some of our struggles for good medical legislation, that the financial motive is really what is urging us on.

In attempting to provide an ideal system of public medical appointments, there are certain axioms which to me seem self-evident.

First and most important of these is that in deciding upon the fitness of candidates for medical positions, the safest guide is a competent jury of medical men. No important medical position ought to be filled upon any other basis. It may be asked why if a mayor or governor is to be allowed to pick out lawyers, engineers and other professional men to help in his administration he should be obliged to make an exception in the case of medical positions. The answer is that the same principle ought to be applied in the case of all professional appointments, but if this is not possible, at once, the medical department is the one in which it is most important that the principle should be applied.

*Read before the Nebraska State Medical Association, Omaha, May, 1916.

This follows from the well-known fact that most people are more careful of their pocket-books than of their health. Many men who are as sharp as tacks in deciding any question requiring business acumen, exhibit a child-like gullibility in matters pertaining to health. A sincere and able executive who might be trusted to fill non-medical positions satisfactorily might easily, through faulty training or personal bias, make a medical appointment that would cost hundreds of lives.

Second: Public medical appointments should be made to hold during good behavior and continued efficiency.

Third: Where the duties of the medical position are such as to be incompatible with private practice such a position should be occupied only by a full-time man and should carry a good salary with a pension, according to the standards prevailing in military service. Experience has abundantly shown that without steady employment and an assured future, proper men cannot be obtained for this sort of work, while on the other hand, it is equally certain that the men best suited for public scientific service are willing to give up their lives to it at very moderate salaries if they can be assured of permanence of employment, opportunities for research and insurance against poverty in old age.

In order to carry out these principles a law should be passed superceding all other laws or portions of laws with which it may come into conflict. This law should provide for a medical board of control to be appointed either by the board of councilors of the state medical society or by the governor from a small list suggested by the councilors. Such a board should have the power of appointment to all medical and health offices of the state and of cities of more than 25,000 inhabitants. Such appointments should be made only upon a competitive examination of all candidates for any given position, and the members of the board as well as its appointees should hold their positions during their good behavior and efficiency. Besides having the power to provide for such competitive examinations the board should regulate and provide for the examinations for license to practice medicine. Such a board of control

should supercede the present state board and the board of secretaries. It is not likely that the duties of such a board of control would be extensive enough to encroach seriously upon the private practice of the members but for the days during which they might be in session an allowance of from \$25.00 to \$50.00 a day should be made to each one. This is a crude and hasty sketch of a law the details of which would have to be worked out by your committee. The important thing is that it contains as basic principles; medical judgment as to medical fitness; freedom of medical appointments from political influence and permanent tenure of office during good behavior and efficiency.

To pass such a law would doubtless meet with a strong opposition from those who have private gains to make at the expense of the public health, and in order to meet the claims of sectarian schools of medicine, compromises would doubtless have to be made as to the constitution of the board, but I believe that some such law would meet with the assent of the people, and if private interests were able to defeat it in the legislature, I believe that a campaign of public education could be carried out which would send it through by a referendum vote. The simplicity of the scheme may seem somewhat Utopian but the principles involved are so plain that I see no reason why the public should not now be brought to apply common sense to its medical offices as it eventually will to all public activities.

STATE MEDICAL ASSOCIATION CONVENTION NOTES.

The 1916 Convention attendance was the largest in the history of the association. The registration totaled 365 with a total membership on the date of the meeting of 1003. This is more than 200 increase over the enrollment at any preceding annual meeting. There are 61 societies, representing 66 counties, on the 1916 roster.

The arrangement of holding the convention in two sections—one, **Surgical**, to include surgery, gynecology and roentgenology; one, **Medical**, to include general medicine, eye, ear, nose and throat; and two **General sessions**—

one on the afternoon of the first day, and one on the afternoon of the last day, received favorable comment.

The local Committee on Entertainment was constantly in evidence, answering inquiries and directing the numerous business and social activities. The Smoker Tuesday evening and Banquet Thursday, gave an opportunity for class meetings, private dinners, or such other functions as the members desired.

From the Report of the Council on Medical Education.

As a result of eleven years' work the oversupply of medical schools has been reduced about 40 per cent; the number of higher standard colleges had been increased by over 80 per cent. In 1904 the number of medical colleges was 162; in 1915, 95. In 1904 only 2.5 per cent had the higher requirements; in 1915, 87.4 had higher requirements. In 1904 the number of medical students was 28,142; in 1915, 14,891. In 1904 only 6.3 per cent of these were in high standard colleges; in 1915, 80 per cent were in high standard colleges. In 1904 the medical graduates numbered 5,671; in 1915, 3,536. In 1904 only 369 were from high standard colleges; in 1915, 2,652 were from high standard colleges.

N. Y. M. R.

Warning.

It is reported that a young man is calling on physicians in various parts of the country, giving the names L. D. Grant, H. E. Peters, R. A. Douglass or F. C. Schneider, and soliciting orders for subscriptions to medical journals and for medical books, for which he is not an authorized agent. He is slender, dark, with dark hair combed straight back, and he shows his teeth plainly when talking. He gives a receipt bearing the heading of some society or association such as the United Students' Aid Society, the Alumni Educational League or the American Association for Education. He represents himself as a student working his way through college and trying to get a number of votes to help him win a certain contest. The societies mentioned do not exist, and physicians should be on the lookout for him. When last heard from

he was in Omaha and is believed to be working his way westward.

J. A. M. A.

Librarian's Report.

To the President, the Officers and the Members of the Nebraska state Medical Association:

I am pleased to hand you herewith my report as Librarian for the year just closed.

Unfortunately, no appropriation has in the past been available for this department, and there being no funds at our disposal, no important additions have been made to the Library.

At present there are approximately 1,500 books and 300 volumes of periodicals, yet all of them are so old and so badly scattered in so far as consecutive volumes are concerned, that as a reference collection the library is almost nil. The Library is housed in the Library of the College of Medicine, University of Nebraska.

During the year the following periodicals have been received:

Pennsylvania Medical Journal, Vol. 16, Nos. 10, 11; Vol. 17, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 12; Vol. 18, Nos. 8, 9, 10, 11, 12; Vol. 19, Nos. 1, 2, 3.

Colorado Medical Society, Vol. 12, Nos. 5, 6, 9, 10, 11, 12.

New Mexico Journal, Vol. 14, Nos. 3, 5, 6; Vol. 15, Nos. 1, 2, 3.

Kentucky Journal, Vol. 13, No. 13.

Reflecting upon the advantage of a good Library, and believing that if the members of our State Association should know how to make use of a good Library, that the benefit would be of inestimable value to the Society and to each member, I have taken the opportunity to go before the Dean of the College of Medicine, University of Nebraska and ask for the privilege of the University Library and that its services be at the disposal of the members of State Association. I will say in passing, that the University Library is the best Medical Reference Library between Chicago and San Francisco.

Dean Cutter has very graciously extended us the advantages and uses of the University Library, and feeling that many members

would take advantage of this offer did they know how, I believe our society should go on record as encouraging the movement and that a propaganda of education as to the advantages of a Library should be started. I am going to ask the House of Delegates, to appropriate fifty dollars to be used as occasions may demand in the furtherance of Library ideas. I would suggest that this money be disbursed by a committee consisting of the President, Secretary and Librarian.

If a new Nebraska State Medical Journal is established, and with an appropriation to do business with, I can see better days ahead for our Library.

Sincerely yours,

W. P. Wherry, Librarian.

The Inadequacy of Privately Feed Medicine.

(Continued from page 57)

of subsequent treatment by X-ray or radium, is impossible of attainment, save through charity, or at public expense, for many of its victims, and imposes upon the families of all save the very wealthy, a grievous burden. Indisputably, dread of the expense of treatment is in part responsible for delay in seeking medical advice. For the diagnosis and cure of no other disease is state medicine more imperatively demanded.

Recently, Dr. G. E. de Schweinitz, the distinguished ophthalmologist, in a plan for the conservation of vision and prevention of blindness, called attention to the need of effort along legal, institutional, social and industrial, as well as professional lines. For the individual case of ophthalmia neonatorum he demanded notification and hospital treatment, and cited the fact that only two of the hospitals of Philadelphia accept such cases. For trachoma, he demanded quarantine; for glaucoma, the greatest present menace to sight, education of the public as to symptoms, and correlation with social service in treatment; and for myopics classification and appropriate vocational training. I am sure you will admit this to be a program for state medicine.

Dr. Wm. Palmer Lucas, physician in chief in the department of pediatrics in the University of California, in outlining an ideal child welfare service for the community, affirms the necessity of co-operation between

pediatrists, laboratory, hospital, the medical school inspection service and boards of health, if the problems of child welfare are to be solved.

Unification of these agencies is possible only under state medicine.

Consider that triad of heart, kidney and vascular disease, the menace of middle age, the Nemesis of our high geared civilization. All authority insists upon early diagnosis, medical and social supervision, and appropriate employment, as the necessary conditions for their limitation. As steps to the prevention of heart disease, with equal application to kidney and vascular disease, named: medical school inspection, for early detection of defects; special vocational training for those showing defects; control of infections; education of public as to causation and prevention; compulsory examinations at intervals after leaving school; and, I would add, the barring from public school and college curricula of strenuous athletics—basket ball, football, track athletics.

There has been recently brought to professional attention by a leading member of the New York profession, whose name I do not at the moment of writing recall, the valuable therapeutic asset which this country possesses in its mineral springs, especially those at Saratoga, and the necessity, judging by European experience, of state ownership and control, if they are to be developed and operated in the interests of public health.

Let me but refer to the inadequacy of privately-feed medicine in the field of orthopedics, with its requirement of minutely specialized knowledge, costly and extensive equipment, and prolonged institutional care; in the treatment of the neuroses, where institutional care is imperatively demanded, free of cost, or at cost below that possible to the private sanatorium; in the treatment of imaginations of disease, which have filled Christian Science churches and the waiting rooms of practitioners of medicine on a bath house basis. Let me instance the absurdity of conceding to the public health service control of acute contagious disease through quarantine, and then relinquishing its treatment to the general profession. And I might continue indefinitely.

In view of all this I am not liable to the charge of proposing a Utopia when I affirm the coming of state medicine, nay, that it has all but arrived. If I may venture an opinion as to the manner of its coming, it is that it will be through utilization of the appropriate organization already existent, the public health service through the natural evolution of this service, which at present has been worked only upon the surface, and is capable of vast expansion. Doubtless the chief obstacle to its coming will be the privately-feed profession. A change in the attitude of the profession toward state medicine is demanded. The medical monopoly, forced to choose between economic advantage and the public good, and, as between profession and public assuming the attitude, "profession, right or wrong" must go, and speedily. Medicine exists for the public; and not the public for medicine. It will be the part of wisdom to accept the change from within, before that time when it shall be imposed from without.

DISCUSSION.

L. S. B. Robinson, Kearney—I am very glad to be greeted by such evidence of advanced thought as this paper contains and delighted to commend a similar line of thought in other papers. I have been restraining myself every week for nine years from writing such a paper as this. I am glad the work has been so well done. I have not refrained from talking privately. Sometime ago a friend of mine in St. Paul listened to my remarks and he said: "Oh, Robinson, medicine won't amount to anything if you take away the incentive of earning money." About a dozen years ago shortly after I came west I visited the hospital in which Will Mayo had made such a record. Mr. Mayo said: "It is too bad about those doctors in the hospital there; they haven't any incentive in medicine; if they could get out and make some money they would make wonderful strides in surgery." I maintain that the man who needs the incentive of a fee to do the best work that he is capable of, is not fit to practice medicine.

Dr. Inches—I am very proud of this paper. Nobody could rise here to say a word not in line with the motive expressed. Uniform charges are coming rapidly, the doctor says. The rush and glamour of everything, has it not got us, as a people? In plain English, what do we worship? I hold the tenor of this paper is absolutely correct. It is axiomatic. I heartily commend that idea that the doctor has not met the idea of his existence and calling if he is impressed by the weight of a dollar in his pocket. There have been numerous suggestions made among us as to fee-splitting. How much have we done, I would like to know? I do hope, Mr. President, that

the idea will prevail that we are our brother's keeper, and our happiness is in just such ideals as that.

Dr. Philbrick, closing: I just want to refer to the discussion of Dr. Robinson. It seems to be the impression that when we shall work under the operation of state medicine, we shall not be working for fees. Rather, we shall be working for such fees as will come to us for nothing more than good work without the necessity of doing so many things that doctors are compelled to do now, to gain practice and fees. The average salary of the general practitioner in England, by the workings of state insurance, has been raised immensely. Instead of not working for fees then, we shall have the surety of certain and more adequate fees with peace of mind and self-respect. I thank Dr. Inches most heartily for his kind words. As he says, changes are coming rapidly. I want to say that in the discussion of my paper, one of those who discussed it pronounced it motherly, and the kindest criticism that was made on it was that it was Utopian and would not be realized for a long time.

Elkhorn Valley Medical Society.

The twentieth anniversary meeting of the Elkhorn Valley Medical Society was held at Norfolk, Neb., on Aug. 3, 1916, at the Country Club. A number of physicians enjoyed a game of golf in the morning. This will be an annual event.

The meeting was called to order at 2 p. m. by President E. L. Brush.

Dr. P. H. Salter gave a very interesting history of the society from the time it was organized up to date.

Several members reported cases which were discussed.

A number of papers were read and a good discussion followed each.

It was decided to hold the mid-winter meeting at Fremont, Neb.

A. P. Overgaard, Secy.

New Creighton Medical Dean.

Dr. James Ross Clemens has recently been appointed Dean of the College of Medicine, the appointment to be effective on the opening of the school year. Dr. Clemens made his preliminary and medical studies in England, where he took the degrees Bachelor of Arts and Doctor of Medicine from London University; he is also a member of the Royal College of Surgeons. He is fifty years old and for several years has been Professor of Pediatrics at St. Louis University College of Medicine.

Report of Delegate to the Council on Medical Education of the A. M. A., Feb., 1916.

The conference was well attended by men who mark progress in medical education and practice.

Dr. Arthur Dean Bevan opened the meeting with a concise historical account of the organization and its progress since its inception in 1905. He showed how the demand for physicians during and immediately following our Civil war, created the excuse for more medical schools whose zeal for professorships and large classes soon surfeited the United States with incompetent, though legally qualified physicians. Thoughtful members in our profession who saw the necessity of efficiency at the bed side of the sick rather than affluence to the "professors," initiated the Council on Medical Education which in twelve years has reduced the number of medical colleges from 162 to 95; the number of medical students from 28,142 to 14,891; and the number of graduates from 5,747 to 3,536. The result is that the American standard of medical education is today widely adopted in the several states in the Union, and equals the best in the world. Through the efforts of the Council reciprocity between states is tending toward unity, and fortification against quackery is being strengthened. The basic principle is an educated profession whose pedagogic work will impel their clientele to demand of our legislators proper civil laws, with adequate provision for enforcing preventive medicine. The reports of the Council on Medical Education are printed in the Journal of the American Medical Association.

Respectfully submitted,
Joseph M. Aikin, Delegate.

Following is a list of the Nebraska medical men in service with the Fourth Nebraska as furnished to the Nebraska State Medical Journal by the Adjutant General's Office, July 25th, 1916:

Major F. S. Nicholson, St. Paul, Nebr.
Major John F. Spealman, Lincoln, Nebr.
Major John M. Birkner, Lincoln, Nebr.
Captain Joseph R. Cameron, Bennet, Nebr.
Captain Herbert H. Smith, Fremont, Nebr.
Captain Lazelle B. Sturdevant, Lincoln, Nebr.

Captain George H. Bentz, Fairfield, Nebr.
Captain George A. Harris, Valley, Nebr.
1st Lieut. Phillip H. Bartholomew, Blue Hill, Nebr.

1st Lieut. Rex B. Stratton, Exeter, Nebr.
1st Lieut. Francis M. Swartwood, Lincoln, Nebr.

1st Lieut. Russell H. Morse, Wisner, Nebr.
1st Lieut. Stacy B. Hall, Omaha, Nebr.

Anesthetics in Cesarean Section.

Principles and Practice of Obstetrics.

(Second edition, page 1016. De Lee.)

"Straight ether is the best anesthetic. In two cases operated under the gas-oxygen method the experience was not satisfactory, the venous oozing, rigidity of the abdominal walls, and straining of the patient being very troublesome. If this method is employed, the gas may not be started until the operator is ready to make the incision, and delivery must be very rapid or the child will be asphyxiated. Several cesarean sections have been done under local anesthesia."

A. B. Somers.

Treatment of Eclampsia; Obstetrical and Gynecological Reports, Sloane Hospital for Women, New York City, Volume 1, Page 108, Supplementary Report: "Further experience with the use of ether in all cases of toxemia rather than chloroform has confirmed the fact of a lower mortality when no chloroform is used. From the time of the introduction of this practice at the Sloane Hospital for Women up to January 1st, 1913, there have been 6,863 deliveries with 50 cases of eclampsia. Among these 50 cases there were six deaths, a mortality of 12 per cent. Among the last 50 cases of eclampsia treated with chloroform there were 15 deaths, a mortality of 30 per cent. Furthermore, under the use of chloroform in delivering toxemic patients there were 50 cases of eclampsia in 5,164 deliveries, while under the use of ether in all toxemic cases there were only 50 cases of eclampsia in 6,863 deliveries, suggesting at least the possibility that chloroform in some cases of toxemia so increased the liver lesion as to increase the number of those having convulsions.

A. B. Somers.

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No. 3

The Surgical Pathology and Operative Technique of Duodenal and Gastric Ulcer.*

J. S. Welch, M. D., F. A. C. S., Lincoln.

An imaginary patient passing through the investigation prescribed by the colleagues preceding me in this symposium would doubtless have a very complete and accurate diagnosis. For these accuracies let us thank especially the more careful history taking and detailed X-Ray investigation. To follow such a case through the various steps in the history taking, physical examination, chemical and roentgenological laboratories is as intensely fascinating as the various advancing degrees leading up to certain ancient mysteries. The discussion of the different phases of the case with your associates while proceeding with the diagnosis, advances your enthusiasm much as that in a political campaign, so that when the operating room is reached you are well nigh as expectant concerning their correctness of findings as the candidate before the opening ballot box. But like political signs so too do clinical findings fail in accuracy. Every diagnostician knows how the history, physical, chemical and X-Ray findings of ulcer may be simulated by a small bundle of peri-cholecystitis adhesions. I take the ground therefore that the complete diagnosis is never made until the belly is opened and he who undertakes a stereotyped operation will too often meet disappointment either during or after operation. He will be blocked by extensive posterior adhesions, or by carrying through the said stereotyped plan without relying on gross surgical pathology at the time of operation he will likely do a needless posterior gastroenterostomy

and later regret it. In other words, every case where surgery for ulcer is imminent the ulcer should be demonstrable at operation regardless of preceding diagnosis.

In the short time allotted me I shall try to discuss:

First: Some of the gross pathological findings of chronic duodenal ulcers and the technique of suitable operations.

Second: Gross surgical pathology of chronic gastric ulcer and technique of suitable operations.

Third: Surgical pathology and operative technique of acute perforating gastric and duodenal ulcers.

The Incision.

In approaching the field of trouble the right rectus incision is most serviceable all things considered. Ready access to the duodenum, pylorus and lower fundus is obtained through a medium sized aperture. Extension upward or downward allows access to the gall bladder or appendix respectively. In a well relaxed abdomen a certain amount of pelvic work can even be done. By opening the anterior sheath and rolling out the belly of the right rectus before incising deeper structures the nerve supply is best preserved and later atrophy thus avoided. We find the injection of quinine and urea (1/4%) according to Crile's method relaxes even strong abdominal muscles in a very helpful manner. It is particularly of assistance in closing, where the muscle spasm so often obstructs the very necessary coaptation of abdominal wall layers.

*Read before Nebraska State Medical Association, Omaha, May, 1916.

Chronic Duodenal Ulcers.

Every ulcer distal to the pyloric vein is duodenal. Most occur in the first portion and the picture presented upon looking into the abdomen varies much. I classify here into three groups:

First: Those with extensive adhesions, usually fibrous, but sometimes in part fibrinous if very recent perforating advances have occurred. The various neighboring structures may be matted together, with the ulcer deeply walled off in a central position. Transverse colon, gastro hepatic and colic omentum, gall bladder and stomach oftenest participate. Frequently the great omentum—the policemen of the belly—has gathered about to assist.

Second: A group with far fewer pathological evidences but still frankly duodenal ulcers. A scar slightly puckering or “hour glassing” the duodenum or a scar “spattered” over and in the duodenal peritoneum resembling cake frosting dropped upon a smooth surface.

Third: Those less pronounced and often uncertain findings. Scudder describes the plainer ones as “strippings.”

All degrees and variation of these pictures may exist, and while the first portion is the commonest seat of an ulcer, we do find them in the second and third parts of the duodenum. Failure to be certain of an ulcer picture in one place always warrants search lower down.

Since the ulcer may be posterior and small as well as sometimes vague it is ever well to confirm the sight picture by palpation. An indurated area, or adhesions felt but not seen, may provide the convincing proof.

The feature of pyloric mobility, and obstruction produced by adhesions, is here significant because it figures importantly in the surgical technique to follow. If freely movable the chance to do a Finney type of operation with its advantages of excising the ulcer and leaving a more natural gastro-duodenal opening becomes possible. If bound down and evidencing pyloric obstruction, no so called blocking or pyloric exclusion is needed and a simple gastrojejunostomy remains to be done.

Chronic Gastric Ulcer.

A. Those in the pyloric zone. These are often not unlike the duodenal just described. Indeed it is sometimes difficult to determine whether the ulcer is really distal or proximal to the pyloric vein. This is of minor importance so far as operative care is concerned because as Murphy says in either event a gastrojejunostomy is indicated.

What has been said above concerning the Finney type of operation applies here especially when the ulcer is near the pylorus. In case the ulcer is superior and saddling over the lesser curvature, with extensive adhesions to the liver and gastro hepatic omentum, a Finney had better not be done. Adhesions here can hardly be permanently removed by any method of division. Peristalsis under such conditions almost invariably causes pain and with the Finney operation more motion continues to occur in the pyloric zone and hence more pain than if a gastrojejunostomy is done. Even here pain is likely to follow, and Eisleberg in Europe and the Mayos in America recommend under such conditions a complete pyloric exclusion either at first operation or secondarily. I believe we have such a case under supervision.

B. Gastric ulcers proximal to the pyloric zone. The commonest of these is along the lesser curvature. The picture seen at operation varies from the smallest area of induration, scarcely to be felt, up to a huge mass. Most show thickening and puckering locally. Scar tissue and adhesions connect involved portion of lesser curvature to the clumped up gastro hepatic omentum. Enlarged glands may be palpable and seen above this. A circular contraction about the fundus of the stomach may cause an hour glass deformity. This same contracture may occur if the ulcer is on the anterior or posterior wall. Sometimes when the ulcer is posterior no evidence of its presence may be seen in looking into the open belly. Palpation through the stomach wall may reveal a suspicious mass and search in the lesser sac may show varying degrees of adhesions to the posterior wall, pancreas, etc. Posterior gastroenterostomy may be made impossible hereby and trans-

gastric excision of the ulcer may endanger the pancreas.

Technique of Operations Suitable for Ulcer in Pyloric Zone.

Nothing particularly new has appeared in the technique field during the year. Only minor modifications have been presented. We find certain prominent men clinging to the posterior gastrojejunostomy with little or no effort to add to the obstruction of pylorus already produced by the ulcer. Certain others think this view in passe and that in every case where obstruction is not already decided, some exclusion of the pylorus—partial or complete—should be attempted. I refer to the Mayo's invaginating suture and the Wilms tissue constricting band—the various silk or linen sutures or the Eisleberg complete division of the pylorus.

I believe more good men are adopting some type of the Finney operation in cases with a pylorus sufficiently movable, without too extensive lesser curvature adhesions and where the somewhat additional shock and retarded convalescence can be well tolerated.

The anterior gastroenterostomy is rarely used.

Where there are marked adhesions between the ulcer and the gall bladder and biliary passages Wyllis Andrews, Bland Sutton and Scudder recommend dividing these and suturing the gastro hepatic, gastro colic omentum or colon between, in some sort of a partition to prevent reunion.

Ulcers on gastric side of pylorus saddling over the lesser curvature with many adhesions to liver are likely to remain painful after a simple gastrojejunostomy or Finney operation—because the peristalsis continues to move the antrum region. Eisleberg and Mayo have recommended the Eisleberg exclusion in such cases.

Technique of Suitable Operation for Other Gastric Ulcers.

Excision of the ulcer is practiced by most surgeons wherever possible. Even if this can be done only through an opening of the anterior stomach wall it should be, because

of the better prognosis. A "V" shaped excision of the curvature including the ulcer, or an elliptical excision about the ulcer of the anterior wall seems preferable to purse string or serial invagination sutures.

A possible gastroenterostomy proximal to the ulcer would be more favored than if it could be done only distal to the ulcer region. Murphy favors it even in the latter case because the resultant alkalization of gastric juice favors healing of the ulcer.

Certain general technicalities hold in all cases.

It is well to have the stomach and bowel empty. This adds to the ease of their manipulation. It makes soiling of the peritoneum less likely. One can release the clamps more in order to catch bleeding vessels. Most important of all is that the fasting stomach and gut rapidly become bacteria free.

Clamps, rubber covered, are quite uniformly used. These should be firm in their clasp. More danger to the mucosa exists if they are too pliable. Coffey cites a case where his clamp cut the mucosa resulting in a fatal post operative hemorrhage.

The redundant mucosa had better be trimmed away. Healing across the new aperture may thus be prevented.

I consider it a wise procedure to tie separately any open vessel noticed, to insure haemostasis.

Sutures of an absorbable but lasting kind are now quite uniformly used for the mucosa and most often for the second layer. Silk or linen should always be interrupted if likely to be exposed upon the mucous surface. Then if ever exposed it can soon slough out and heal. Continuous non-absorbable sutures exist in the base of and probably have produced many recurrent ulcers. Even interrupted stitches of silk in the serosa are preferable and worth the slightly additional time it takes to place them.

The anatomosing button of Murphy is still in general use in his clinics and to a degree elsewhere. Where great haste is essential its usefulness increases. We have never adopted it.

Acute Perforating Duodenal and Gastric Ulcers.

Moynehan says "no more serious malady can befall a human individual." This is especially true of neglected cases. Very early operation greatly reduces the seriousness. Having established the diagnosis upon an ulcer history, sudden severe onset and board like abdomen you open the abdomen to see a picture varying with the duration of the perforation. Early, very little peritoneal injection exists with minimal stomach contents present. Later the food particles may be difficult to recognize because of the abundant fibrin and pus of the advancing peritonitis. Sometimes blood is present. Search for the perforation is generally promptly rewarded either early or late if its location is anterior. When behind, it may be more difficult to find and only opening the lesser sac will determine the trouble.

The operative technique in very early cases with little shock does not differ greatly from chronic non-perforating cases. In addition to closing the perforation with or without excision of the ulcer, the same indications for blocking the pylorus, performing a Finney or doing a posterior gastroenterostomy hold good. Cleansing the abdomen of stomach contents and establishing adequate drainage is always indicated. If the case is advanced, closure of the perforation should be attempted by some purse string or other invaginating suture, or where too friable to retain sutures a patch of omentum or mesentery should be applied and the peritonitis appropriately treated.

The perforation has sometimes been left untouched after washing the stomach and treating the peritonitis. A fasting stomach will then add little danger and in extreme cases the least done the better. A later and safer time can be selected for completing the operation.

Case Reports.

The following case history abstracts show well the surgical pathology of several different types of ulcer as seen at operation.

C. A. P. 2-10-15, Red Lodge, Montana. (Fig. 1.)
Pathological pictures seen in open belly.

a. Few bands of adhesions across median anterior wall of stomach from gastro hepatic ligament to transverse colon and its mesentery. (Skiagrams had shown peculiar indentation of lesser curvature).

b. Indurated ulcer on posterior wall of first portion of duodenum. Many fibrous adhesions extending across to gastro hepatic ligament.

Duodenum very large—this doubtless due to:

c. Fibrous bands extending from transverse colon and its mesentery to arterio—mesenteric ligament.

Operation: Division between double ligatures of those adhesions causing tension and retraction.

Obstruction considered sufficient. Posterior gastroenterostomy, Mayo no loop method.

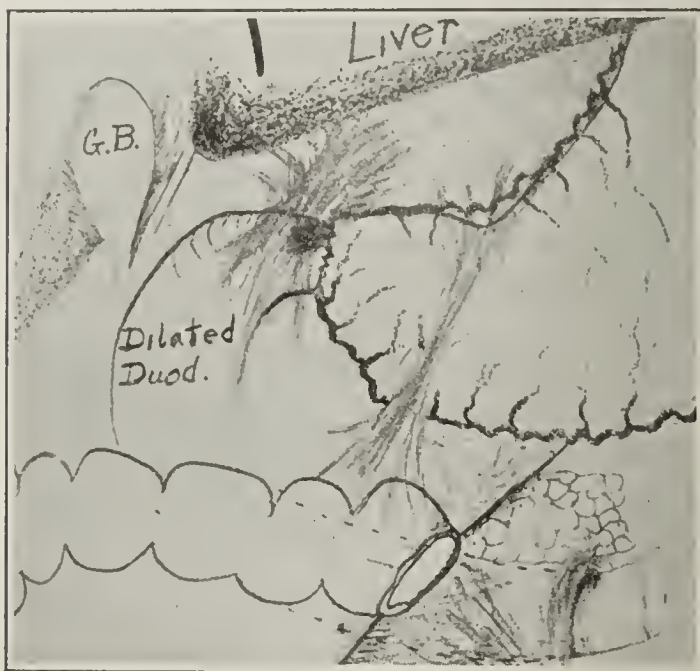


FIG. I.

Mrs. R., 2-16-15. (Fig. II.)

a. Inner aspect of gall bladder and cystic duct adhered to 1st portion of duodenum. Hepatic flexure of colon adherent to 1st and 2nd portion of duodenum and pyloric end stomach.

b. Beginning of duodenum and pyloric end stomach feel slightly indurated, centering in anterior upper part of duodenum.

c. Foramen of Winslow closed. Fibrous adhesions in the right one-third portion of lesser sac.

d. Appendix directed up along ascending colon and most adhesions near its distal extremity.

e. Pregnant uterus.

Operative measures: Double ligation and division between of adhesions, attempting to prevent leaving raw surfaces and to increase pyloric obstruction. Division of some lesser sac adhesions.

Posterior gastroenterostomy, no loop—Mayo type, using No. 1 chromic catgut for two inner layers and silk for outer.

Appendectomy.

H. F., 2-6-15. (Fig II.)

Many fibrous adhesions between liver, gall bladder, gastro colic and gastro hepatic ligaments with in-

durated ulcer in first portion of duodenum in center of the mass.

Chronic appendicitis with moderate constriction.
Operation: Posterior gastroenterostomy and appendectomy.

C. E. P., 4-1-15. (Fig. II.)
Gall bladder adherent by its inferior surface—throughout to duodenum. The superior posterior duodenum wall indurated very near pyloric vein.

Small atrophic appendix buried in adhesions.
Operation: Posterior gastroenterostomy—no loop method. Pyloric obstruction—not increased. Appendix dissected free and removed.

L. C., 12-11-15. (Fig. II.)
Dense mass of adhesions about duodenum binding gall bladder, pylorus and colic omentum to it. Lesser sac practically obliterated by adhesions. Appendix somewhat swollen and injected. Adhesions about it.

Operation: Posterior gastroenterostomy, no loop type. Appendectomy. Division of adhesions in lesser sac and also of those creating tension about pylorus.

Mrs. E., 11-25-15. (Fig. II.)
a. Extensive fibrous adhesions between anterior margin of liver, hepatic flexure and transverse colon, gall bladder, stomach and duodenum. Nested under these was a small slightly indurated area on the posterior superior part of the duodenum.

- (Ulcer small in proportion to adhesions).
- b. Adhesions in lesser sac in pyloric and antrum regions.
 - c. Appendix constricted and its mesentery contracted..
 - d. Right ovary size of big black walnut. Cystic and adherent.

Operation: Post. gastroenterostomy only. No further obstruction to pylorus. Appendectomy. Right ovary removed.

Mrs. C., 4-27-15. ((Fig. II.)
a. Gall bladder, gastro hepatic omentum and duodenum adhered by fibrous adhesions. Beneath these on posterior, superior duodenal wall was a small indurated ulcer. Considerable obstruction apparent.

- b. Multiple fibroma of uterus.
- c. Appendix—strictured.

Operation: Division between double ligature of retracting adhesions. Post. gastroenterostomy—no loop method. Subtotal hysterectomy. Appendectomy.

E. M., 2-8-16. (Fig. II.)
Indurated ulcer first portion duodenum adherent to gall bladder. Obstruction to pylorus demonstrable. Chronic appendicitis.

Operation: Posterior gastroenterostomy. Appendectomy.



FIG. II.
This presents the class of ulcer most frequently met at operation. The above seven cases vary slightly one from the other but belong to this general class.

F. G., 2-28-12. (Fig. III.)
About four and one-half inches from pylorus, in first part of second portion of duodenum was an irregular patch of scar tissues upon serosa. It resembled a spatter of thin dough or cake frosting. Moderate induration felt. Short sclerotic buried appendix, pointing toward pelvis and covered by adhesions from caecum. A long tag of omentum attached here also.



FIG. III.
Infrequent location of ulcer. X-Ray diagnosis had placed ulcer in second portion.

A. S., 4-2-12. (Fig. IV.)
Small slightly indurated, puckering mass saddling over lesser curvature very near cardiac end of stomach. Few bands of adhesions radiating up to gastro hepatic omentum and down over anterior wall of stomach.
Operation: Excision of ulcer.



FIG. IV.

Mr. P., 4-15-16:

Stomach contents seen immediately upon opening abdomen. Peritoneum injected.

Ulcer perforating anterior superior aspect of pylorus—on stomach side of pyloric vein. Perforation the size of a small pea. Little induration—no adhesions.

Operation: Purse string suture of silk. Serial invaginating suture and gastro hepatic omentum sutured over this as a patch.

Obstruction to pylorus seemed to be marked and posterior gastroenterostomy done.

DISCUSSION.

Dr. J. E. Summers: With reference to the question whether or no a gastroenterostomy should be done in perforating duodenal ulcer in addition to repairing the perforation, Deaver of Philadelphia recently reported forty-one cases operated upon; in each of these a gastroenterostomy was done in addition to repairing the perforation. At the meeting of the American Surgical Association in Washington two weeks ago, the general sentiment expressed was against doing a gastroenterostomy in these circumstances, it being considered too much additional, and usually unnecessary work, upon patients in a serious condition, thus unnecessarily jeopardizing lives.

Dr. A. C. Stokes, closing: I have only a word or two to add. The treatment of chronic gastric ulcer, with the exception of the perforating ulcer is still more or less indefinite. Resections of portions of the stomach have not given as good results as was hoped because they are possible in a comparatively small percent of cases. Posterior gastroenterostomy physiologically is not a rational treatment. The stomach is put at rest for a certain period of time by this procedure. A gastroenterostomy is the only operation if a resection can not be done. The surgery of gastric ulcer is still experimental to a large extent. Chronic, recurring gastric ulcers do not get well with the ordinary medical treatment and do get well in a large percent of cases following prop-

erly chosen operative therapy according to the present teachings in the best clinics. There is an increasing tendency to perform the pyloroplasty of Finney which in certain selected cases is a very valuable operation. Finally the surgical treatment of every gastric ulcer is a question of the knowledge and judgment of the operator at the time of the operation.

Etiology and Pathology of Gastric and Duodenal Ulcers.*

Dr. A. C. Stokes, B. Sc. M. D., Omaha.

The etiology of ulceration in the gastro intestinal tract has been discussed in medical literature for more than two centuries.

Gastric ulcer was mentioned by Jacobus Fotanus in 1612. In 1715 Conrad Brunn described tubercular ulcers in the gastro intestinal tract. J. Krauss collected the literature of the subject up to 1865 in an excellent monograph entitled "Das Perforirende Geschwur in Duodenum." A treatise by Chvostek entitled "Das infach Duodenal Geschwur" brought the literature up to 1882. In 1900 S. W. Fenwick published a treatise entitled "Ulcer of the Stomach and Duodenum" and about the same time an address by Dr. Robert Weir before the American Surgical Association entitled "Perforating Duodenal Ulcer" brought the literature down to 1900. Since 1900 notable progress in the knowledge of the etiology, pathology and symptomatology of this disease has been made by the contributions of Mayo Robson of London, Kummell of Hamburg, Moynihan of Leeds and W. J. Mayo of Rochester.

Ulcers are found in all parts of the gastrointestinal tract but in the pyloric end of the stomach and first portion of the duodenum they assume a particular clinical significance. In all portions of this tract acute ulcers form, last a week or two and heal, but in the pyloric end of the stomach and duodenum they become chronic, cause pain, mal-nutrition, vomiting, hemorrhage, may heal, break down again, possibly perforate and have a cyclic chronicity of recurrence and disappearance extending over a period of years. These characteristics increase the difficulty of obtaining definite knowledge as to etiology and treatment.

The etiology of simple or peptic ulcers has

*Read before Nebraska State Medical Association, Omaha, May, 1916.

a definite relation to the anatomy, physiology and chemistry peculiar to these parts. It is agreed by all that the majority of ulcers either in the stomach or the duodenum occur within an inch either side of the pyloric vein. They rarely occur beyond the papilla of Vater in the duodenum or around the esophageal or cardiac end of the stomach.

We will therefore, consider first the anatomy peculiar to the ulcer bearing area. The pylorus with the first part of the duodenum is a fixed point in the gastro intestinal tract. There is no mesentery and no vermicular movement. The structures are fixed firmly to the back in such a way that they can not move up or down, and therefore cannot so readily adapt themselves to the changing directions of the lines of force during the peristaltic wave. Hard food material, pushed forward from the stomach into the duodenum strikes a more or less fixed wall, on the lesser curvature of the stomach and pylorus. It is to be expected that trauma in this region would be more destructive than in any other portion of the gastro intestinal tract, where vermicular movements follow changing directions of force. The circular muscular fibers are very abundant on the lesser curvature and pylorus and first portion of the duodenum. The longitudinal fibers are extremely thin over this area. At the pyloric end of the stomach we find deep so called peptic or pyloric glands extending through the submucosa and lying on the muscular coat. In the duodenum we find a large number of glands similar to the pyloric called the glands of Brunner extending nearly through the entire wall of the mucosa as in the stomach. Such anatomical structures are found at no other point in the gastro intestinal tract. It is possible to conceive that these glands may at times form a locus minoris resistentiae. They may harbor a large number of micro organisms. They are lined with high columnar epithelial cells, very easy of infection, and micro organisms may easily hide in their acini and grow at such slight invitation as diminished blood supply or thrombosis of the end arteries of the mucosa. Practically every sacculated area in the pyloric end of the stomach presents one or more of these glands and

the first part of duodenum is abundantly supplied with them.

The pylorus is a thick heavy invaginated mucosa extending into the duodenum much as the cervix extends into the vagina, and forming a cul de sac at the beginning of the duodenum. Stasis and fermentation can readily take place here. The peristalsis in this location does not so easily remove the food from within this cul de sac. The blood supply to both the beginning of the duodenum and pyloric end of the stomach is profuse. The lymphatic drainage is fair and the nerve supply rather sparse. Most pathologic changes about the duodenum are caused by the increased or diminished blood supply rather than by any trophic nerve influence.

The portion of the stomach under discussion contracts and expands with great force. The excursion of a definite point of the mucosa of the pylorus is greater than the excursion of any corresponding point on any part of the walls of the intestine and the force of concentration many times greater than at any other part. Chemically, the gastric and duodenal ulcer bearing area stands alone in the entire gastro intestinal tract, in that it is bathed in hydrochloric acid. When the acidity has reached a certain concentration in the stomach, the pylorus opens. The chyme is discharged into the duodenum which is bathed with the hydrochloric acid at practically the same concentration that it leaves the stomach. It then comes in contact with the bile and pancreatic juice and is neutralized. Peptic ulcers are not found beyond the point of acid chyme.

Whether or not these anatomical and physiological facts answer the question of the etiology of gastric and duodenal ulcer it is difficult to state, but some of them or all of them certainly have a bearing upon the chronicity of these ulcers. We must keep in mind that a very large number of acute peptic ulcers heal and disappear. Clinically the brunt of the discussion as to etiology lies with the chronic ulcer. They heal, break down in the center, reopen, heal again, break down through a little wider area and leave perhaps a large portion of stomach or duod-

enal wall, as the case may be, infiltrated with leucocytes and connective tissue cells. Stellate areas of contraction appear with the corresponding lessened resistance. If the part is placed at rest they remain healed. They are shaped like the crater of a volcano or funnel shape. Their edges are undermined and shelved. In the bottom of the crater is found a granulating surface. Such ulcers finally result in either temporary healing or perforation into the free abdomen or into some other organ or into a blood vessel.

It is interesting to review in a cursory manner some of the experiments which have been made on the production of gastric ulcer. Turk fed animals with pure cultures of *B. C. C.* and claims to have produced a certain number of chronic gastric ulcers, some of which perforated. Virchow injected lamp black into the veins of ears of dogs and produced gastric ulcers, most of which were acute and which healed within a very short time. It is a well established fact that burns on a large area of the body produce gastric and duodenal ulcers, with the results that most of them heal after a certain period of time. Injections of micro organisms into the circulation produce gastric and duodenal ulcers, which however, are usually not confined to this portion of the intestine alone, but may be found in other portions of the small intestine. In 1913, Rosenow claimed that by the use of certain strains of *Streptococcus viridans* he could produce gastric ulcers at will, that these micro organisms had a selective action for this area of the intestine. The injection of silver nitrate or lycopodium into the veins produces gastric ulcer.

Gastric ulcers are prone to occur in the presence of certain disease. In women with chlorosis, or amenorrhea ulcers may be found. Malaria, tuberculosis, chronic valvular heart disease, Bright's disease, septicemia and pyemia; local infections of tonsils, of the teeth, of the sinuses, of the urethra and prostate, may be primary to these ulcers. Chlorosis very commonly exists together with gastric ulcer. Fenwick found gastric ulcer in 72 per cent of his cases of chlorosis. It occurs so frequently in the presence of menstrual disorders that Christ named this the menstrual ulcer. Mayo lays stress on the fact that excessively hot or excessively cold drinks may have something to do with chronic gastric ulcer. The question of hot or cold fluids should have little bearing for if such were the case, we would expect the gastric ulcer to be more frequent in the

esophageal and fundal end of the stomach because by the time the fluid reaches the duodenum it has been cooled.

Virchow recognized the relation between ulcer of the stomach and infarcts in other organs in respect to size and vascular relations. Virchow's opinion held sway for some time, but this explanation will suffice for only a few cases. Klebs suggested that local anemia of the gastric mucosa had something to do with the formation of gastric ulcer. Talma found that stimulation of the left vagus produced tonic spasms of the pylorus and by the compression of the coronary artery he was able to produce ulceration in the pyloric portion of the stomach. Miller and Fenwick show that occlusion of the portal vein results in intense engorgement of the gastric veins with frequent ulcerations in the stomach. Boettcher found micrococci in the border and floors of gastric ulcer.

Gastric ulcer may be formed as frequently in other portions of the stomach as the pyloric antrum but the others heal. It is possible that some alterations in the blood may have to do with the production of chronic gastric ulcer. The chronic gastric ulcer is usually single, though Elliott collected eighteen cases of multiple chronic gastric ulcers. Most perforations take place on the anterior portions of the stomach and duodenum. They are particularly common on the lesser curvature. Gibbon found in twenty-two cases that fifteen perforations occurred on the anterior wall of the stomach near the pylorus and seven in the first portion of the duodenum. The size of the perforations varied from one-sixteenth to one-twelfth of an inch. Elliott found forty-two cases of perforations in the stomach and thirty-six in the duodenum. Duodenal ulcers are found singly in most cases. Frequently there occurs, according to Mayo, kissing ulcers. That is, an ulcer on the anterior wall of the duodenum produces an opposite ulcer on the posterior wall.

Wilke out of 490 post mortems found 41 cases of duodenal ulcer. Most of these cases had been under treatment for some other severe and eventually fatal malady, and in these forty-one cases the ulcer was in the first portion of the duodenum, with two exceptions. In nine cases the ulcer was on the anterior wall, in twelve on the posterior wall, in twelve there were ulcers on both anterior and posterior walls, directly opposite, in five cases the ulcer was at the upper part of the roof of the duodenum just beyond the pylorus and in one case on the lower wall of the duodenum. In twenty-one cases there was but one ulcer, in sixteen cases two ulcers, and four cases more than two ulcers. Of these sixty-six ulcers

found in the forty-one cases, sixteen were acute, twenty-six chronic and eleven doubtful as to whether acute or chronic, fifteen healed or healing. In a large percentage of these cases Wilke found some toxic or irritative factor present outside the duodenum most frequently existing within the colon or appendix. Wilke thinks that many duodenal ulcers are primarily follicular caused by the breaking down of lymph follicles. He states also that whatever may be the cause of gastric or duodenal ulcer, spasm of the muscular coats of the ulcer bearing area is a factor in determining its chronicity. None of the older writers agree with Moynihan and Mayo that duodenal ulcer is more frequent than gastric ulcer. Climate seems to have no effect on gastric ulcers and so far as any tabulation is concerned full diet has little relation to the etiology of gastric ulcer.

Gastric and duodenal ulcer is considerably more frequent in females than in males in the general relation of perhaps about three to two. Brinton and Dansiger make the relationship about two to one; at the Manchester Royal Infirmary two and one-half to one; Steiner eleven to eight; Welch and Fenwick three to two. In Breslau, Leibert found ulcer to be more common in males with a ratio of about four to three. Mayo finds it more common in males in ratio of three to one. Ages of those having gastric ulcer is twenty to fifty. In females twenty to thirty and in males thirty to fifty. One hundred seventy-one cases collected from records of the University College Hospital, London, tabulate as follows:

15 cases between ages of to 20
75 cases between ages of 20 to 30
38 cases between ages of 30 to 40
25 cases between ages of 40 to 50

Hamburger found gastric ulcer most frequent in cooks and attributed the cause to their frequent tasting of hot food. Alibut found it most common in housemaids. Eichhorst finds it most frequently in metal turners. Mayo states that 66%% of his cases gave a definite history of alcoholism. Gastric ulcer is said to be most common among the poor classes who take insufficient or badly prepared food and live in poorly ventilated rooms.

We are struck with the analysis of this condition made by Jefferson in the May, 1916, number of the *Annals of Surgery*. Jefferson and Flumerfeldt make the following observation. "The experience of Steinhart and Rosenow tends to show that bacteria play an important part in the production of ulcer, but something more still is needed before the experimentally produced gastric ulcer will consent to become chronic with a tendency to perforate." We know also that gastric ulcer and duodenal ulcer occur only in that area of the gastro intestinal tract bathed by hydrochloric acid. This alone, however, will not suffice to make the acute ulcer chronic. If, however, we add to these two facts a third fact, namely; hyperperistalsis of the stomach and first portion of the duodenum, we may fairly arrive at a causative theory. Friedman and Hamburger have succeeded in producing gastric ulcers which become

chronic in a large series of experiments by the combination of these three factors namely, presence of bacteria in the circulation, the presence of acidity in the pylorus and the production of a condition which caused delay in emptying the stomach, hence hyperperistalsis. Murphy says, "We must regard the formation of chronic ulcer as a thrombotic process." That is, the end arteries of this region becomes thrombosed in the sub-mucosa and this area is digested, producing thus the acute ulcer. If we add to this thrombosis the movements of the pylorus, the trauma to its walls by food, the presence of acid and hyperperistalsis in the stomach, or stalsis caused either by obstruction or lessened motility, we may fairly expect chronic gastric ulcer to result. We cannot accept the theory that to date any selective micro organism has been discovered, the injection of which into the circulation will constantly produce chronic gastric and duodenal ulcer.

Gastric ulcers have various synonyms all of which carry a little different idea. We speak of gastric ulcers as peptic ulcers, round ulcers, pinpoint ulcers, infiltrating ulcers, and perforating ulcers.

Ulcers may be confined only to the mucous membrane. They are then spoken of as mucous ulcers; they may have a circular punched out appearance extending to the bottom of the sub-mucosa or they may have a round circular appearance with a central raised area of the mucous membrane and the ulceration extending to the bottom of the mucosa. Such ulcers are spoken of as healing ulcers. They may be contracting with puckered edges and about three-eighths of an inch in diameter, stellate in form, sloping to the center, showing a healing ulcer with the center not quite finished but surrounded by cicatricial contractions. Practically all of these ulcers seem to begin in the sub-mucosa and near the base of the peptic glands. Evidently the sub-mucosa is the beginning of the thrombosis of a small artery or arteriole or vein. The thrombotic area of mucosa is digested after which ulceration and chronicity is secondary to the local anatomical and physiological relations.

The infiltrating ulcer is usually produced by repetition of this thrombotic process and extension of the process below the sub-mucosa and into the muscular coats. These infiltrating ulcers are sometimes as large as the top of a tea cup. They have an area in the center that tends to perforate. Many

of them do perforate. The size of the perforation being from the size of a lead pencil to that of the index finger. Some of them only partially perforate and the diapedesis of leucocytes and toxins causes peri-gastric and duodenal adhesions. Particularly in the duodenum the formation of adhesions is followed by symptoms. Constrictions are frequently of such strength that obstruction to the passage of food through the duodenum is observed. The duodenum is frequently pulled up tight against the liver and sometimes even over the top of the gall bladder. I have seen one case in which the duodenum was folded over and adherent to the stomach. Partial perforations occur frequently on the lesser curvature of the stomach into the gastro hepatic omentum or posteriorly to it, into the lesser cavity of the peritoneum producing numerous perigastric adhesions. Perforations into the lesser cavity are usually walled off. This area is the least dangerous for perforation except in some few cases where nature is unable to control the perforation by local plastic peritonitis. Occasionally the ulceration extends around a large area of the stomach and heals and the contraction of healing produces deep incisura in the walls of the stomach. This last influence together with the perigastric adhesions is the chief factor in hour glass stomach. Ulcers on the pylorus never perforate except they extend into the duodenum or stomach. Their healing if they heal at all, is exceedingly slow. The constant contraction and expansion of the circular muscle appears to have the same effect on this healing process as massaging a surface ulcer. The infiltration is wide and deep, the healing by contraction and hence secondary pyloric obstruction is the result of chronic pyloric ulceration.

The acute perforation is characterized by a sudden complete break in the continuity of the stomach wall. There may be no antecedent symptoms and the first notice of stomach trouble is perforation. Such ulcers usually appear as punched out areas, as though a sharp punch had been driven through the wall of the stomach into the abdomen, and had incised a circular portion of the stomach

wall from $\frac{1}{2}$ to 1-inch in diameter. I have seen at least two such cases, where the stomach wall and the interior of the stomach showed no signs of chronicity, and the anamnesis gave no indication of the pathology that was found.

In conclusion we may say that the etiology of gastric ulcer is dependent, not upon one factor but upon the combination of several. The antecedent cause is a circulatory change in the sub-mucosa. This may be general or local and is probably either a thrombosis or an embolism of some of the arteries in this anatomical structure, not necessarily infective in origin.

If the anatomical and physiological characteristics of the affected part be considered in their relation the etiology, pathology and course of chronic gastric ulcer may be regarded as a perfectly logical sequence of natural phenomena.

DISCUSSION.

Dr. W. L. Ross, Omaha.—I just want to speak in reference to the anemic condition which has been mentioned as an etiological factor and say that I think it is Hughes of New York who has in a series of experimentations, found that if the tissues of the pylorus are not fully supplied with oxygen, the anemic blood stream allows the mass to be much more readily digested by the action of the gastric juice, and I want to say that in an anemic condition where we have say 75% or 60% hemoglobin and possibly a reduction of one or two million red cells, we can readily see in what way anemia would act as a predisposing etiological factor in bringing about ulcer of the duodenum.

A Possible Predisposing Factor in the Etiology of Duodenal Ulcer.*

C. A. Roeder, M. D., Omaha.

The pyloric and duodenal area being the most active physically and chemically of any portion of the gastro-intestinal tract probably accounts for the preponderance of ulceration occurring there. Another important predisposing factor enjoyed only by this area and to my knowledge not heretofore advanced is traction on the bulb or first portion of the duodenum when the dilated segment or stomach is filled and it is one I wish to emphasize in the etiology of duodenal ulcer.

The first portion of the duodenum or bulb

*Read before the Sioux Valley Medical Society, July 19, 1916.

suspends more weight after meals than any other portion of the gastro-intestinal tract at any time, with the possible exception of the area surrounding the cardiac orifice. Those of you who have followed your cases to the screen at first must have been greatly surprised at the marked descent of the distal portion of the stomach following the opaque meal. One can readily picture the greater excursion following the normal meal which generally weighs two to four times as much and the constant traction on this first portion of the duodenum for one or two hours after; particularly so in those who cannot afford the luxury of the reclining posture for at least one hour after eating particularly a hearty meal. A full stomach must weigh considerable when one considers the amount of solids and liquids ingested together with the saliva and gastric juice and increased blood supply, enhanced considerably by the weight of the transverse colon. During spring and fall the laboring man works hardest and eats most and going to work on a full stomach with considerable traction on the bulb may account for the seasonal exacerbations so characteristic of this lesion.

Nearly all ulcers of this area occur in the first portion of the duodenum on the anterior wall and in an area described by W. J. Mayo (Surg. Gyn. Obst., 1908) as "The anemia spot," because on gentle traction during an exploration there is produced a local anemia in some individuals closely resembling a chronic ulcer. Wilkie (Surg. Gyn. Obst., 1911) in a valuable contribution to the anatomy of the blood supply of the duodenum, feels that traction causes a localized anemia in this ulcer area. I think we can safely assume that this anemia from traction extends through all the coats as the blood supply of this area does not possess an abundance of anastomosis, and as the mucosa does not lie in folds, the least traction on it produces a local anemia in certain individuals.

The blood supply coming from beneath, any interference with the circulation in the outer coats must have a marked influence on the inner.

We know that for an area extending one-fourth to one-half inch from the suture line following gastric surgery, the mucosa be-

comes necrotic leaving the layer beneath exposed—an acute gastric ulcer. Picture the huge ulcer formed in the stomach irrespective of its shape following a resection and an anastomosis and with what certain rapidity it heals without bismuth and other delusions. The blood supply remains normal hence the repair.

I doubt very much if we would ever see an ulcer extending beyond the mucosa—the typical surgical ulcer—if the blood supply were always sufficient and I doubt very much if a few minute clumps of bacteria such as might circulate in man, which have been sifted through the capillaries of the lungs and liver would attack this area so frequently if they were not there invited by an area of decreased resistance resulting from a chronic localized anemia. The bacteria isolated from the boundaries of ulcers and the thrombosed vessels in this area are secondary factors.

The amount of stretching the bulb of the duodenum must undergo following a heavy meal can be partly estimated by marking the point of greatest descent of the pyloric ring behind the screen and noting its position when the abdomen is opened. Following such a procedure one must admit that the first portion of the duodenum with its intimately attached mucosa must have been stretched considerably to have produced the comparison.

One might argue that the stomach and duodenal bulb of the ptotic individual enjoys considerable excursion and that they have duodenal ulcer far less than those possessing organs more normally "fixed." This is quite true. In observing the excursion of the duodenum when the abdomen was open in about three hundred cases during a two year service as first surgical assistant at the Mayo Clinic I have been impressed with the fact that ulcers occur rarely in the duodenum which is loosely attached to the posterior abdominal wall. The duodenum of the so-called normal individual remains "fixed" assuming more traction with its occasional local anemia. A non-perforating ulcer does not produce adhesions enough to increase the duodenal attachment to the posterior abdominal wall.

The greater freedom from ulcer the ptotic

individual enjoys might be due to the more primitive position his stomach assumes resulting in less angulation and traction of the distal end. Going back to the time when we possessed a straight intestinal tube of uniform diameter and tracing it through its various stages of dilatation and angulation we find that there has gradually been produced just beyond the distal end of the dilated segment or stomach, by swinging this portion to the right and hanging it up on the posterior wall, an angulation of probable decreased resistance; potential, if the amount of fixation allows considerable excursion with absence of traction, or susceptible to future ulceration if the degree of angulation and attachment assumes traction with its resultant anemia, activated by the more modern custom of developing this dilated segment into a reservoir with its resultant traction when filled. In some individuals the tension on the second portion of the duodenum from the weight of the cecum, ascending colon and right kidney increases the traction and angulation. The band of peritoneum found so frequently passing across the first portion of the duodenum and extending up to the transverse fissure of the liver may be due to a functional response on nature's part to assist in assuming part of the traction.

The Diagnosis of Gastric and Duodenal Ulcer.*

Arthur D. Dunn, M. D., Omaha.

In the time allotted to me it will be impossible to cover even the essential phases of the assigned subject. Therefore I shall discuss briefly some of the pathologic and physiologic bases on which the clinical phenomena of gastric and duodenal ulcer rest. I shall then consider the methods of acquiring data and attempt to evaluate the data and I shall hazard a brief critique of some present day work based on a rather limited personal experience. The treatment of the subject matter must necessarily be somewhat aphoristic.

An ulcer is a break in continuity or a defect in the mucous membrane and wall of the stomach or duodenum. Its symptoms are more or less characteristic pain and dis-

turbances in function which arise from reflex irritation and from the varying morbid anatomy inherent in the pathology of the ulcer and its location.

Certain symptom complexes occurring in ulcer depend on the pathology present.

(1) The extent of the ulcer often determines the picture. If the ulcer involves the serosa, rigidity, tenderness and signs of localized peritonitis are evident. The symptom complex of perforation is common knowledge.

(2) Character of the pathological process. Slow and irregular cicatrization makes the background for a chronic picture. Inflammatory edema or scarring of the surrounding tissues results in obstruction if the ulcer is located in the vicinity of the pylorus or cardia.

The hourglass stomach mirrors the end results of chronic cicatrization of lesser curvature ulcer.

(3) Malignant degeneration. This gives rise to early transient disturbances in chemical values and to uncheckable bleeding.

(4) Involvement of surrounding structures. The information of adhesions causes impaired function and morbid manifestations on the part of the involved structures. The involvement of the pancreas and of the gall bladder or ducts in an ulcer tints the clinical picture.

(5) Position. The position of the ulcer is an important factor. The longer the period between food intake and pain, the lower the ulcer. The sooner and shorter the pain, the higher the defect. In pyloric ulcer position is a prime factor in determining symptoms.

From the above hasty sketch it can readily be seen how much the symptomatology rests on pathological grounds and how much a definite mental picture of ulcer pathology aids clinical understanding. A diagnosis of gastric and duodenal ulcer is incomplete if it does not picture the morbid anatomy which exists.

The Morbid Physiology of Ulcer.

The functions of the stomach are motor and secretory. Disturbance in function is constantly associated with ulcer. Any departure from normal function is significant

*Read before Nebraska State Medical Association, Omaha, May, 1916.

and is a block that must be correctly fitted into the diagnostic picture puzzle.

The Etiology.

Since it has been demonstrated that a large proportion of ulcers are infectious and depend on foci at a distance, no diagnosis is complete that does not unearth all possible foci. The examination for foci of infection must comprehend nose and throat, tonsils, teeth (radiographs), gall bladder, appendix, kidneys and genitalia.

Methods.

With the physiology and pathology of ulcer in mind its diagnosis becomes a question of methods. In variations in method and in the class of clinical material available lie the discrepancies in the views of different observers. Whatever confusion exists is attributable largely to differences in the methods used, to the use of one or two methods to the exclusion or neglect of others, to the failure to use all methods of gaining data, and to the unsound evaluation of data.

I. History.

We are just emerging from a period of exaltation of the clinical history. In many quarters an appropriate history sufficed to send a patient to the operating table. "Upon them (symptoms revealed by history) alone a confident diagnosis of duodenal ulcer may be made" (Moynihan). One speaks of the possibility of making the diagnosis by correspondence. W. J. Mayo says: "Dividing into four groups the means of diagnosis, the history is of first importance, the Roentgen ray a second, the physical examination (stomach tube findings, etc.) third, and the purely laboratory findings a poor fourth." In justification of this viewpoint it may be said that these observers have been dealing with chronic ulcers and with ulcers of such duration that the subjective symptomatology has become fixed. Eusterman states that the average duration of symptoms in patients suffering from duodenal ulcer studied at the Mayo Clinic is twelve years! It should hardly be necessary to point out the changes that the time element makes in the diagnostic problem. A diagnosis of duodenal ulcer that

is easy after an existence of twelve years may be extremely difficult when the ulcer has been present only six months. Yet in the absence of extensive clinical and laboratory observations and in the absence of careful roentgenologic work an unbiased positive anamnesis is the most important factor in the diagnosis of gastric or duodenal ulcer. The vernal and autumnal exacerbations, the intermittency of clinical manifestations, the exact periodicity and regularity of the food-pain sequence, the temporary relief from food taking, the relief from the use of soda, from starvation, from vomiting, etc., when taken together, all tend to produce a picture that is clear cut. Yet were one to rest ones diagnosis on the history, especially when the trouble is of short duration one will certainly be treated to unpleasant jolts. Some bitter disappointments must have led to Mayo Robson's cynical statement that the most common seat of duodenal ulcer is in the right lower quadrant. The importance of irregularity of attacks and of symptoms, as speaking against the diagnosis of ulcer should be emphasized.

II. The Stomach Tube.

The information to be gained by the use of the stomach tube is not negligible. It still remains a more reliable means of estimating the motor function than the X-ray and it provides chemical data to boot. Although ulcers occur not uncommonly with a normal or a sub-acidity and rarely with an anacidity yet hypersecretion and hyperacidity are important links in the chain. The presence of blood, trauma from the tube excluded, when taken with other findings is presumptive evidence of ulcer and points toward a gastric location. Hypersecretion is almost pathognomonic of pyloric ulcer. The gastric flora is of minor importance. A seven hour motor meal residue should attract attention; a ten to twelve hour residue with few exceptions means serious trouble at the pylorus.

III. Stools.

Ulcers are defects in the mucosa therefore they must bleed. Blood in the stools when extra-gastric and extra-duodenal sources can be excluded is corroborative evidence of great

value. The bleeding of ulcer is intermittent. It often follows overeating and the ingestion of coarse and irritating foods. With time and persistence one rarely fails to find showers of occult blood in the stools. The under-valuation of this finding is due to lack of extended observations. Blood in the stools is not necessary to the diagnosis of ulcer when the history, tube and X-ray findings are definite but it goes far to support the diagnosis of ulcer in questionable cases.

IV. Physical Examination.

The data gained by physical examination are of relatively less weight. Tenderness to the left of and in the median line suggests ulcer as against gall bladder disease. A deep tender point to the left of the eighth to the tenth dorsal spine is of value. Muscle rigidity points to peritoneal involvement. I have not been able to derive much decisive knowledge from the plotting of areas of hyperaesthesia. The method is open to subjective error on the part of both observer and observed.

V. The Roentgen Ray.

The roentgen-ray is a most important adjunct to the diagnosis of diseases of the gastro-intestinal tract. A few findings are positive, others must be taken in conjunction with other clinical findings. Failures in interpretation are due to lack of pathological and physiological knowledge and to the failure to appreciate the limits of the method. It is to be hoped that unwarranted enthusiasm in this field will not bring a valuable method into disrepute. The tendency to speak of X-ray diagnosis instead of X-ray findings is unhealthy.

There are two positive X-ray findings in gastric and duodenal ulcer: the niche and the fistula of perforated ulcer. They demonstrate the pathological defect. Persistent constant deformity of the duodenal cap is positive of duodenal ulcer. This sign has inherent pitfalls. One plate showing a normal duodenal cap excludes duodenal ulcer from an X-ray standpoint. Twenty-five to fifty plates must be taken before a normal cap can be excluded.

There are numerous contributory Roentgen

ray findings of variable importance which we can little more than enumerate. Hyperperistalsis with rapid initial emptying associated with a six hour stomach or duodenal residue is strongly suggestive of duodenal ulcer. A persistent incisura points to ulcer and when the area opposite fails to show peristaltic activity ulcer is probable. Barium residues have less significance than food residues because they are not the normal stomach contents. Tender points, adhesions, lessened motility, prognathism, hour glass stomach, and gastric hypertonus are findings which point to pathology but not to type. The value of the X-ray in determining the position of the ulcer and in sizing up its pathology is inestimable.

The differential diagnosis of ulcer is often extremely difficult. Cholecystitis, cholelithiasis, carcinoma, syphilis, appendix disease, and the neuroses provide sufficient trouble and error varies inversely as the square of the time of observation and the openness of the diagnostic mind.

The diagnosis of ulcer is not finished with the establishment of its existence. The location, extent, character and nature of the pathological process remain to be determined for the treatment to be instituted rests on these factors. It would seem advantageous for purposes of study to divide ulcers into surgical and medical groups, although in the shifting state of our knowledge such a division must be somewhat personal, difficult and temporary. In the surgical group we can include without much danger of controversy the following types: (1) ulcers which have produced a high degree cicatricial stenosis, (the differentiation of a stenosis due to inflammatory edema from one due to scar formation can only be made through a study of the effects of rest, non-irritating diet, and the constant maintenance of HCl-free stomach contents), (2) chronic perforated ulcer if their location makes surgical attack feasible, (3) chronic ulcers in which profuse intermittent hemorrhages occur despite treatment, (4) hour glass stomach, (5) ulcer in which malignant degeneration is suspected. It is clear that the time element and the results of an adequate, scientifically controlled

hospital course must be emphasized on deciding the status of the ulcer. The grouping must vary somewhat with individual viewpoints.

The diagnosis of the existence of most of the ulcers that may by any rational stretch of conscience be included in the surgical group is easy. It is the diagnosis of medical ulcers that is difficult. Ulcers have a beginning. In their early phases the pictures are blurred. Many vague and confusing films will have been thrown on the clinical screen before the sharp lined figure of chronic cicatricial perforating ulcer appears. It is from those interested in the surgical group that we learn of the ease and accuracy of ulcer diagnosis. Carban by the X-ray method alone is reported to have made a correct positive diagnosis verified at the operating table in ninety-five per cent of cases. It is reasonable to expect such results in the hands of an expert but no one knows how many he missed among his negatives. The internist and practitioner labor under the great disadvantage of dealing with early cases in which no one method suffices to make the diagnosis. All methods must be used and then the diagnosis must too often remain a "probability diagnosis." I have often sent cases to the hospital with a probable diagnosis of ulcer to learn later that a gall bladder condition, or a neurosis, or a fit of unhappiness was the cause of the trouble. Fortunately the rest and diet instituted met the therapeutic indications in many instances.

In conclusion, I wish to emphasize the following points:

- (1) That for purposes of study, ulcers may be divided into surgical and medical groups.
- (2) That the diagnosis in the surgical group is easy and in the medical group it is uncertain and often extremely difficult.
- (3) That all methods should be used, in the "easy" group if only for the experience gained, and in the "difficult" group because every shred of information is valuable.
- (4) That the treatment instituted must depend on the type diagnosed and not on the fact that an ulcer exists.

Treatment of Gastric Ulcer.*

Le Roy Crummer, M. D., Omaha.

The ideal of medical treatment in diseases of various organs is to secure physiological rest of the organ till recovery can take place.

In ulcer we strive to reach the ideal but are immediately confronted with difficulties impossible to surmount, so our entire efforts are a compromise between the ideal and the practical. In the old von Leube treatment (complete starvation) we did give the stomach absolute rest, but results were not good because, while so doing, we reduced nutrition to such an extent that healing was delayed.

Without going into the theories of etiology or facts of pathology we may say that whatever methods are used we should strive to:

- (1) Maintain Nutrition;
- (2) Prevent pain due to:
 - (a) Excessive secretion,
 - (b) Spasm;
- (3) Give the stomach proper periods of physiologic rest.

In the dietetic requirements we have in a graduated diet, such as Lenhartz, one which meets the nutritional requirements and at the same time has a high acid combining power and on completion only three to five pounds of body weight is lost.

While pain is not always due to a high acid percentage, nevertheless, we have in alkalies (Sodium bicarbonate and Calcined magnesia) something which will, chemically, relieve most of the pain and even in excess can do no harm. In atropine or belladonna we have a drug which will relieve spasm and reduce secretion.

The retention of food stuff in the stomach with the constant over activity of the pylorus can be prevented and physiological rest secured by using lavage.

By the combination of these elements we meet all the indications for treatment. So in the individual case the orders are:

1. Rest in bed.
2. Lenhartz diet.
3. Atropin 1/100 by hypo, twice daily.
4. Sodium bicarbonate grs XXX three or four times a day and extra for even the slightest pain.

*Read before Nebraska State Medical Association, Omaha, May, 1916.

5. Lavage four hours after the last feeding with record of amount recovered.

On the treatment, pain ceases at once and the stool usually becomes blood free on the 7th to 9th day and light diet can be resumed at the end of two weeks. Should, however, blood persist beyond the ninth day, or pain be recurrent, or an increasing content be found at the evening lavage the patient is put back to the fourth or fifth day of the diet. A third reduction in diet is occasionally required but under such circumstances we have to do usually with a constricting ulcer and surgical attack must be considered.

There are certain difficulties in the treatment I'll admit, but these difficulties are easily overcome in a well equipped hospital. To deal more definitely with the symptoms:

Pain: Pain due to ulcer is relieved by alkalies and for any pain not so relieved we must seek another cause. The most frequent being a disturbance in the physiologic activity of the bowel due to the ulcer diet. We also have pain due to gall bladder involvement not infrequently and occasionally pain due to a slight peritonitis of incomplete perforation. The pain of sudden perforation is, of course, another matter. Vomiting which may have been a symptom previous to treatment, is a rare finding when the above dietetics are carried out. If it occurs it requires lavage and modification of the diet.

Hematemesis is a comparatively rare symptom under treatment, but if it occurs Livingston's suggestion of lavage is the best method of treatment.

Nutrition: The cases generally go through without any pronounced change in nutrition, but occasionally when the cure is delayed metabolism suffers and there is a good deal of trouble in reconstruction. More often we deal with neurotic individuals and the relief from the Lenhartz diet is so pronounced that we have difficulty in getting them back on a general and satisfactory diet.

DISCUSSION.

Dr. S. A. Swenson, Oakland.—About a year ago a paper was published by Sippey in the Journal of the American Medical Association, on the medical treatment of ulcer in which the author emphasized the importance of the alkali treatment. Up to that time in my practice. I had used very little bicarbon-

ate; I had followed Lenhartz' treatment as nearly as I could, but I found that without alkali of this kind it is very difficult to relieve the pain. Sippey emphasized the fact that the stomach in the condition of hyper-acidity causes a spasm of the pylorus. That has since been demonstrated to me in my practice very definitely, that in spite of the fact that the patient may not have taken any food for a long time, he will continuously vomit a great deal. In one patient after vomiting, and a long time after taking food, I recovered a great deal of very highly acid fluid and after that, using the alkalies I succeeded in keeping the patient absolutely comfortable. Since that time I have followed the alkali treatment with very satisfactory results.

Malignant Disease of the Lung With

Report of a Case.*

Geo. W. Covey, M. D., Lincoln.

The object of this paper is not to give an exhaustive review of the literature, or even to fully discuss the subject of malignant disease of the lungs. My object is, primarily to report a case of adeno-carcinoma and then call attention to a few points which seem to me to be of particular interest.

Case report:

Mrs. J. V. P., aged fifty-eight, came December 8, 1915, complaining of weakness, cough and loss of weight.

Previous History: Negative up until five years ago. Had given birth to three healthy children, had no miscarriages, and had passed the menopause at fifty-two years of age. Soon after she ceased to menstruate her abdomen began to enlarge, and she was told she was pregnant. The distention of the abdomen grew constantly worse until July 30, 1911, when she was seen by Dr. A. E. Mack of Omaha. She was tapped and nearly three gallons of fluid removed, whereupon a pelvic mass was discovered. The patient's husband states the fluid removed was dark and rather thick. Seven days later a large tumor said to be a fibroid, was removed, and contrary to expectation the patient recovered.

Family History: Negative.

Present History: For about three and one-half years after this operation the patient was fairly well. Then (one year ago) she began to have cough, loss of weight and dyspnoea. The cough raised a clear, frothy mucous, occasionally stained with blood, in larger and larger quantities, until now there is as much as a pint some days. Loss of weight has been constant, from 144 lbs. at that time to 109 lbs. at present. Dyspnoea has constantly become more marked, until now it is one of the most striking features. Pain has been absent, excepting about six months ago a little sharp pain in the left axilla,

*Read before Nebraska State Medical Association, Omaha, May, 1916.

with four or five doubtful night-sweats. Bowels regular, no urinary disturbances, or vaginal discharge. No edema or abdominal distress.



Fig. 1. Roentgenogram of chest. Note pyramidal shape of tumor mass on right chest. The so-called "snow-flake" appearance is poorly shown in upper right chest near the shadow of the button.

Physical Examination: Large framed woman about whom the most striking feature is dyspnoea, the next, emaciation.

Eyes, throat, mouth, reflexes, lymph glands, abdomen, and extremities all negative.

Chest: Full, left 2 cm. smaller than the right. Right chest shows an area of dullness in front from the clavicle to the fourth rib, and from 2 cm. to the right of the sternum to the middle of the axilla. Over this area there are bronchial breathing, increased vocal resonance, and many large sticky rales. In the back, a dull area 4 cm in diameter in the lower part of the upper lobe, with practically the same auscultatory signs. Left chest dull above, beginning at the second rib in front, and at the spine of the scapula behind and increasing to flatness at the base posteriorly and in the axilla. Tactile fremitus absent in lower axilla. Rales similar to the right, with distant bronchial breathing. A needle introduced in the axilla withdrew a small amount of sero-sanguinous fluid.

Heart: Outline somewhat difficult to map out because of the neighboring consolidation, but the area seems considerably increased. Rythm absolutely irregular. Systolic murmur heard best at the apex.

Temperature, 97.6°; pulse, 90; resp., 32. (Temperature remained constantly below normal).

Laboratory: Blood—W. B. C. 7800, Polys 82%. Lymphocytes 18%. Sputum—Clear, frothy mucous, repeatedly found negative for tubercle bacilli, containing no pus cells, and very few bacteria of any kind.

Urine—Negative.

On the following points a diagnosis of new growth of the lungs was made which was later confirmed by X-ray report and proved at autopsy.

1. History of a pelvic tumor.
2. Physical signs of consolidation, with a sputum of peculiar character, negative for pus or tubercle bacilli.
3. Bloody chest fluid.
4. Marked cachexia.
5. Marked dyspnoea.
6. Lack of fever.

The following is the description of the X-ray findings, very kindly given me by Dr. E. W. Rowe. The accompanying illustration may aid the description:

The examination of the chest consisted of fluoroscopic and radiographic methods. The fluoroscopic showed nothing the stereoscopic plates do not reveal. In both sides of the chest are large confluent masses. In the left side the lung tissue is replaced entirely as high as the apex. The density thins out



Fig 2. Section of Tumor. Photomicrograph. Note adenomatous arrangement of high columnar epithelium.

toward the upper angle of the lung. In the right lung the area of greatest density is near the center, pyramidal in shape, the base extending out toward the pleura. The remaining area of this side is more or less involved with infiltration of varying density. The lesion is comparable to large fluffy snowflakes packed, in varying densities, one on top of the other, with the main masses as described.

The patient went rapidly to a fatal termination on the third of January, 1916.

Post-mortem examination:

Chest—Left contained about one-half liter bloody fluid. Adhesions present in the axilla and at base behind. Lung solid. Almost complete whitish, friable, granular mass. Air space almost nil. Cut surface soon becomes discolored and covered with a glairy, mucous like substance. Tumor thought to be a sarcoma.

Right contained a very small quantity of bloody fluid and only a few adhesions in the upper axilla. Whole upper lobe and upper half of the lower solid. Many white nodules from pinhead size to that of a

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There is a tendency in any state geographically situated as is Nebraska, to view lightly, the public health problem. Nebraska has an abundance of fresh air, an overplus of sunshine, an ample supply of pure water and employment and food for ten times her population. There are few cities where congestion and crowded living conditions obtain. In our larger cities the milk supply is well handled. At times laxity creeps in, but in the main the people feel satisfied that they are obtaining pure and wholesome milk. Our schoolhouses are well built; they are warm in winter and well ventilated; the lighting is good and sanitary conditions excellent. Yet Nebraska has tuberculosis; a large number of cases considering her population. We have had serious epidemics of typhoid and our milk supply has been the means of spreading diphtheria, septic sore throat and the like. Shall Nebraska possessing all the natural advantages of the most healthful community, take too much for granted, rely too strongly upon these advantages for the maintenance of normal health? Because we have never had a state wide epidemic with an aroused public sentiment, we have as a state complacently ignored public health matters. As now constituted and with the present equipment and appropriation, our State Board of Health can do little but record the causes of deaths and aid communities in the

diagnosis of epidemics. Many of our cities are looking after public health matters far better than is the state and it was necessary in the recent typhoid epidemic in Omaha and Lincoln to request expert assistance not from the state but from the Public Health Service of the Government.

Lately, however, Nebraska people have been thinking along public health lines and there is a beginning public sentiment for a better state health organization. Women's clubs are doing much and the State Medical Association is aiding. Cooperation must be the keynote if Nebraska is to have a modern health organization. The present laws must be amended and full power given health officers. Adequate appropriations for the employment of trained public health officers must be obtained. Nebraska physicians should be thoroughly alive to the possibilities of a better health organization for Nebraska.

Criticism cannot wholly attach to the State Board of Secretaries for the present status of public health matters in Nebraska. The appropriations are insufficient for good scientific work and the organization entirely inadequate. A public health laboratory has been established which is doing much to aid the early diagnosis of diphtheria, etc., and a campaign for the bacteriological analysis of public water supplies is being carried on. All this, however, is not enough. A working organization is needed that will provide a corps of trained men who will have sufficient legal and moral support to place Nebraska public health administration on a sound basis of efficiency.

The "Better Babies" contest in connection with the State Fair will serve to call attention to the fact that there are babies and then babies. No one would guarantee that the baby who scores the highest will develop into the best man or woman, but physical perfection is a goal to be truly desired and if possible attained. Any "exhibit" calling the attention of the public to better living and better health conditions is worth while.

These baby exhibits bring to the attention of hundreds of mothers the necessity of proper food, clothing, exercise, sleep, etc., for the growing child. "I just grewed" as Topsy said, must never be. The intelligence of the average mother of today is no doubt superior to that of twenty years ago and on this must we rely for a better if not braver race. Better babies means better men and women.

The papers published in this number offer a careful and concise resume of the medical and surgical aspects of gastric and duodenal ulcer. Early recognition of ulcer with appropriate treatment will preclude perforation and other conditions requiring surgical interference. Early surgical attack in serious symptom producing ulcers will insure permanently satisfactory results. The emphasis naturally is upon the early diagnosis of ulcer conditions with prompt and skillful treatment.

The value of a thorough physical inspection of public school children has been too frequently demonstrated to require argument. We have a compulsory attendance law which requires the attendance of all children between the ages of five and fourteen. This means a compulsory exposure to contagious and infectious disease unless preventive precautions are observed. To protect each child from preventable infection and contagion is surely as important as any single branch of the public school curriculum.

The growth of physical inspection of school children in the United States has been exceedingly rapid. Since 1895 nearly 400 cities have inaugurated a system of physical inspection. Teachers and school officers who have studied this question are fully aware of the many physical defects which menace the health, happiness and school progress of the child. Of our Nebraska cities Lincoln has without a question the best organized and most efficiently conducted plan of physical inspection. It is a healthful sign that this year Omaha is employing a corps of trained nurses who will assist in the physical examination of the pupils of the public

schools. In order to be efficient any system of physical inspection must be supervised by a competent trained medical officer.

Nebraska District Medical Societies.

Elkhorn Valley Medical Society.

President, E. L. Brush, Norfolk, Neb.; Secretary, A. P. Overgaard, Omaha, Neb. Next meeting January, 1917, at Fremont, Neb.

Five County Society (Northeast Nebraska).

President, L. Stark, Hartington, Neb.; Secretary, F. C. Dewey, Coleridge, Neb. Next meeting at Wayne, Neb. Time not decided.

Northwestern Nebraska Medical Society.

President, G. O. Remy, Ainsworth, Neb.; Secretary, James M. Tische, Wood Lake, Neb. Next meeting will be at Wood Lake, Neb., Tuesday, October 31st.

Republican Valley Medical Association.

President, Hal C. Smith, Franklin, Neb.; Secretary, L. W. Rork, Oxford, Neb. Semi-Annual meeting First Thursday in October at McCook, Neb.

Malignant Disease of the Lung.

(Continued from page 83)

dime in the middle lobe. Air containing lung very limited.

Heart: Large, flabby, not involved by tumor.

Bronchial lymph glands apparently uninvolved.

Abdomen—Remains of sub-total hysterectomy. Stump looks healthy. Otherwise negative.

Microscopical examination of specimen—Sections taken from all the various parts of both lungs show practically the same picture, namely one of adenocarcinoma, or what might be called cyst-adenocarcinoma. In places the structure looks like a simple adenoma in which the arrangement is alveolar in appearance, as if the epithelium normally lining the alveolae of the lung had undergone a change. In other places there is piling up of the epithelium and breaking through of the basement membrane, and the alveolae of the tumor mass can be seen pushing aside those of the lung. Throughout, the epithelium is cylindrical-celled with nuclei at the base, and mucous producing.

The pleura even where thickened, remains uninvolved. The adhesions between the two layers of pleura, are not infiltrated by the new growth. Bronchial lymph glands showed calcified tuberculous lesions but no involvement by the neoplasm.

The distribution of the lesions in this specimen leaves no doubt that it is a metastatic affair, and that the method of distribution was via the blood stream. Autopsy and his-

tory reveal only one place from which it can have come; namely, the pelvic mass removed four and one-half years ago. What the exact nature of that mass was we can only conjecture.

Remarks: Primary pulmonary malignant disease is relatively rare, primary sarcoma being about four times less frequent than primary carcinoma. Of 20160 autopsies on cases dying of all diseases, reported by Wolf (1) forty-six, or 0.2 percent showed primary tumor of the lungs. Of 9,246 cases (2) collected by A. A. Stevens, autopsy revealed twenty cases, or 0.2 per cent primary lung malignancy. Sixteen of these were carcinomata, and four sarcomata. Henrici (3) makes the statement that primary lung carcinoma appears once in one thousand six hundred autopsies.

Secondary malignant neoplasms of the lungs are relatively common. They are somewhere near equally divided between sarcoma and carcinoma. Of Stevens' collected autopsies on all kinds of cases, 9246 in number, 1,000, or 9.2 per cent showed malignant lung neoplasms, 980 of which, or about 98 per cent were secondary growths. Brown (4) quotes from Adler 330 collected cases of pulmonary malignancy showing 211 carcinomata, and 228 sarcomata, and 24 endotheliomata, while Moore and Carman (5) publishing a series of 71 cases, of which 59 were microscopically examined, found 40 carcinomata, 16 sarcomata, and 3 hypernephromata. This series seems however to have dealt with a preponderance of breast cases, which may account for the larger percentage of cancers.

The time intervening between the primary growth and the manifest symptoms of the secondary tumor in the lungs is notably long. The average time in the series mentioned above of Moore and Carman was two years and three months. Brown (4) mentions a case of sarcoma of the testicle secondary in the lung four years later. T. M. Martin in the British Medical Journal (6) notes the frequency of the long latent period, three years in his case, and says: "With a history of malignant disease subsequent clinical events even though remote in time and situation and perhaps not obviously suggestive of

a secondary malignant growth, ought to be viewed with anxiety and suspicion." In my own case three and one-half years intervened between the operation and the onset of secondary symptoms.

In summarizing their excellent paper on "Radiographic Diagnosis of Metastatic Pulmonary Malignancy," Moore and Carman concluded that there is a definite roentgenographic picture consisting of clear-cut circumscribed areas of increased density, differentiated from inflammatory areas by the absence of the so-called "fimbriated halo," and make a timely suggestion that many useless and unwarranted operations may be avoided by routine roentgenographic examination of the chest in malignant disease, particularly of the breast, of bone, of thyroid gland and of the pelvic viscera.

Bibliography.

1. Brown. Same references as No. 4.
2. Stevens, A. A., *Am. Jour. of Med. Sc.*, Aug., 1912.
3. Henrici, A. T., *Med. Record* V. 82, p. 351. (Review fr. *Jour. of Med. Resear.*)
4. Brown, T. R., *Osler and McCrae, Mod. Medicine* V. II, p 997.
5. Moore and Carman, *Am. Jour. of Roentgenology* V. III, No. 3, p. 129.
6. Martin, T. M., *Brit. Med. Jour.* V. II, 1913, p. 939.

The Operative Treatment of Cancer by the Actual Cautery.*

J. E. Summers, M. D., Omaha.

We now recognize that cancer in its early stages is a local disease and curable by removal, the percentage of cures being directly in proportion to its early recognition and the promptness with which operation is performed. Mr. Louis L. Dublin, statistician of the Metropolitan Life Insurance Company, states that "with the science of the treatment of cancer as it is, the education of the public and of the general practitioner to the necessity of early recognition and early treatment of cancer, would cut down the mortality from this disease by one-third." If the science of treating cancer as it is today, with

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which the more advanced thinkers and workers are not at all satisfied, offers a reduction in the present mortality of 33 1/3%, it is certainly our duty with the knowledge at hand, to improve our present mode of treatment and thus still further reduce the mortality of today.

At a meeting of New York surgeons, held last week in the New York Academy of Medicine, in association with the American Society for the Control of Cancer, some very strong opinions were expressed, all of which I am not in accord with. For instance, Dr. F. C. Wood of Columbia University declared that it had been established almost beyond question that cancer was not a germ disease nor in any way allied to germ diseases, and that much of the work done lately in laboratories had been in the way of unlearning the theories which had been built up on the analogy of bacterial diseases. He said that nothing had been accomplished in the search for the cause of the disease beyond the disproof of the theory that cancer was communicable, or was brought into the body of the patient in any way from outside! This is neither a fair nor proper statement. What right have we to dogmatically assume that cancer is not a germ disease when our knowledge of its clinical history, and that is really all the knowledge we have of cancer, corresponds in so great a degree with known demonstrable germ diseases, such as tuberculosis and syphilis. What knowledge have we of disease, that is not based upon the germ theory? Therefore, in my opinion, we should re-double our interest in work in laboratory experiments. But laboratory workers must have the assistance of men who are in daily contact with disease, at the bed-side and operating table—those who study the “pathology of the living.” At this meeting at the Academy of Medicine to which I have referred, several distinguished men criticised severely many of the claims that have been put forward in behalf of radium in the treatment of cancer, on the ground that the unjustifiable optimism of some experimenters and the pretensions of certain commercializers of medicine had done great harm by causing patients who could be cured at the time

by surgery, to put off the operation in the hope of having an easier remedy, and to allow the cancer to gain on them until their cases became hopeless. One of these speakers who had made an analysis of the statistics on the treatment of cancer by radium, issued by Kelly's sanitarium at Baltimore, and those issued by Dr. Robert Abbe and others, using radium for cancer, asserted that the figures of those who thought the highest of radium, failed to show that radium was of any such value. While these figures purported to show cures effected by radium, the speaker said that they showed a smaller percentage of cures than are obtained by surgery, that their cures were effected only in cases which could be treated by surgery, and that radium was admitted to be useless in types of the disease in which the knife could not be used successfully. It was also shown from the quoted results of other experimenters in the use of radium, that rays from the mineral frequently aggravated the disease, and that the benefit obtained by this treatment was usually transitory, and followed by bad results. Other speakers agreed in the truth of the above statements and suggested that laboratories using radium should, in all cases, be under the supervision of a surgeon competent to decide when surgery could be used with benefit, so that no lives would be sacrificed in experiments where there was a chance that they could be saved by surgery.

I have called your attention to the above statements which are scarcely a week old. They come from up-to-date, reliable sources and express the sentiments of those most anxious in the profession, to improve the treatment of cancer, and it is with this thought in mind that I wish particularly to call attention in certain instances, to the operative treatment of cancer by use of the actual cautery.

Although the actual cautery had been used for the destruction of local malignant and infectious growths, little was understood about the systematic use of the galvano-cautery until Byrne, of Brooklyn, in 1872-3, in a series of papers published in the New York Medical Record, proved by his clinical work that for the treatment of carcinoma of the cervix

uteri we possessed in the galvano-cautery an agent of great future promise. The electric cautery when properly employed is attended with less danger, immediate or remote, and promises better results than can be claimed for any other method. In his presidential address before the American Gynecological Society, published in volume 17 of the Transactions, 1892, Byrne still further emphasizes his impression from farther experience in the use of the galvano-cautery in the treatment of cancer of the cervix uteri, declaring that "during a quarter of a century or more following the introduction of electro-cauterization by Middeldorpf of Breslau, though with imperfect apparatus, its peculiar advantage over destructive chemical agents in the treatment of uterine cancer has repeatedly been demonstrated." Up to 1880 the choice of proceeding lay between this and high amputation by scalpel or scissors, as practised by Schroeder and adopted by others even to the present day. Then when this fell into disrepute and the difficulty attending the practice of electro-cauterization not having been overcome, the time seemed ripe for the introduction of the more unsparing and admittedly more dangerous operation of total removal of the uterus. From the time of the introduction of the cautery to the present day, the number who have given this method a fair trial may be enumerated on one's fingers, while there are hundreds who have operated, anxious for surgical notoriety. When gynecologists in New York and elsewhere, tried the method a few years ago, they labored under the delusion that the entire practice of galvano-cauterization consisted in looping a cervix or removing pedunculated tumors. Clumsy and often abortive methods were carried out. They did not know how to use the galvano-cautery, and they did not exert patience. The technic demands operative dexterity. Byrne's curative and palliative results in the treatment of cancer of the cervix uteri have never been equalled up to today, and his criticisms above quoted, regarding the non-appreciation of the value of electro-cauterization in cancer of the cervix uteri, are as true today as when written. I am familiar with the practices of the major-

ity of surgeons throughout the country and in our own particular locality, and no one, to my knowledge, has, up to within the last year or two, in any systematic way, treated cancer of the uterus in an operative manner other than by use of the knife.

It would be unprofitable to occupy your time in describing what, with modifications to be determined by experience, the Percy treatment for cancer of the cervix uteri promises. You are all doubtless familiar with the work of Percy, to date; his technic, his reasons for the use of low degrees of heat in contradistinction to high degrees of heat which result in carbonization of the tissues, the favorable comparison of heat with the **knife**, in that the former "seals the lymphatics and blood-vessels and cuts off nerve supply, thus limiting real danger from further dissemination and infection." Percy insists that the low degrees of heat have much greater penetration in a mass of cancer, than the high degrees. Low degrees will coagulate the tissue, encouraging heat dissemination. I am personally of the opinion that Percy overstates this proposition, because I believe that if the cauterizing cones or cylinders be removed from time to time during the process of the operation, and the carbon scraped off from their surfaces before re-application, that a higher degree of heat can be used with advantage, and that the time required for the operative procedure may be materially reduced, thus lessening the usually too long drawn out anesthesia, and at the same time accomplishing, I believe, better results.

In a recent discussion with a member of the largest clinic in the country about this particular point in the Percy technic, my own opinion was entirely sustained, and this was based upon the experiences of this clinic.

The results of my own work with the electric cautery in the treatment of cancer of the cervix uteri, hopefully curable and hopelessly incurable, have been more than pleasing, and I hardly think I shall resort to hysterectomy, or the curette, scissors, or chemical cauterization in the future. As a palliative measure the electric cautery has done for me what nothing else has formerly approached. In its employment there are

certain dangers to be avoided, but Percy has pointed these out and no one should attempt the use of these measures without a comprehensive knowledge of the work of Byrne, Percy and others. The curetting specialist has no business dealing with such measures.

Womankind owes Dr. Percy a debt of gratitude which it can never repay, and we surgeons must thank him for rejuvenating and improving the technic of Byrne, but more especially must we realize that if the electric cautery knife is good to use, and scientifically so, for cancer of the uterus, then it must likewise be good to use for cancer elsewhere. It must have advantages over the knife in other parts of the body for the same reasons. A comparatively few surgeons are taking advantage of this knowledge, but most markedly, I think, must we acknowledge the work of Dr. Bloodgood at the Johns Hopkins Hospital Clinic, in the treatment of cancer of the tongue. Dr. Bloodgood has shown first, that the propaganda urging early investigation of any suspicious growth has resulted in an increase of from **eight** to **thirty** per cent in the opportunities for observations of pre-cancerous lesions, and that late and inoperable cases have decreased from **eighteen** to **ten** per cent. The cures have increased from **twenty-one** to **fifty** per cent. Dr. Bloodgood states that by newer methods in which the cautery plays a conspicuous part, in **fourteen** cases in all, of cancer of the tongue, there has been no post-operative mortality and so far, but one patient has died of recurrence of carcinoma within five years. Previously the post-operative mortality in cancer of the tongue has been above **twenty-two** per cent, recurrence when taking place occurring within one year; thus, in this most terrible affliction there is a promise of a larger percentage of permanent cures, and certainly larger freedom from recurrence.

In readily accessible localities growths with plenty of healthy tissue to spare, there is certainly no need for the cautery, but in instances where this is not the case I believe that the electric cautery knife should have the preference.

In discussing the question of the amputation of the breast by means of the electric

cautery knife, with a member of the same clinic to which I have above referred, I was told that its use had been abandoned but that it was realized perhaps unjustifiably, as it had only been employed by them in advanced cases with skin involvement. I take it that everyone appreciates the unfairness of any opinion based upon its use in such conditions, and that was the opinion expressed by me and acceded to. My own experience in amputation of the breast with the galvano-cautery knife is limited but favorable. There is little hemorrhage, prompt deep repair, but delayed repair of the wound edges; this last is of no material importance. In heavy fat breasts the technic is rather disagreeable and uninviting for the operator, and I am rather inclined to advise in such instances first, use of the knife, and then afterwards thorough cauterization of the surface with the electric cautery. Strange as it may seem, there is practically no carbonization in such an operation, except of the skin edge.

I have been for a long time, and still am, an advocate of the use of the actual cautery in the removal of new growths of exposed surfaces, particularly of the face, because of the lessened deformity and the surety of actual destruction of the elements of the growth. Radium also is apparently useful for the same purpose. The knife should seldom have a place in such surgery.

DISCUSSION.

Dr. D. T. Quigley, Omaha.—I wish to discuss the paper of Dr. J. E. Summers in regard to the issue which he seems to bring up between radium and surgery. I do not think that there is any such issue. I do not believe there is any issue between radium and surgery. The question is not, "Is radium going to replace surgery in cancer?" The question is: "Can our surgical results be improved, by the use of radium, in conjunction with surgery." I believe that every operation for cancer ought to be followed by radium if possible and in my own work, particularly in breast operations I have used radium following the operations. So far we have had no recurrences where we have used radium after the breast operation. The custom has been to use radium by burying the tubes in the open wound. In this way I believe we can reach small areas of cancer cells which have been missed by the knife and which ordinarily bring on recurrences. The issue between the use of cautery and radium in cancer treatments I believe is very favorable to the use of radium. We need no anaesthetic, there is no pain connected with

it, and experiments in Vienna have shown that by taking sections in the pelvis after the use of radium, the cancer cells are killed out within a radius of two and a half inches in diameter and I believe that is a good deal deeper than we can get by cautery or any other means. And when you consider that we can stop the bleeding and kill the cancer cells within a radius of two and a half inches, I believe we are doing a good deal better with radium than we can do by cautery or any other way.

Remote Effects Following Oral Infections.*

L. M. Stearns, M. D., Kearney.

Of late years the medical profession has awakened to the fact that pyogenic infections within the oral cavity have an important bearing upon the general health of the individual. The thing that has brought it more forcibly to our attention has been the use of ipecac and its derivatives in the treatment of pyorrhoea alveolaris.

In making the remarks that are to follow I do not wish to be misunderstood. In all walks of life we find the good and the bad, the careful and the careless, the conscientious and the indifferent, the progressive and the backslider. As in our profession the dentists have within their fold quacks and fakers who I believe are responsible for more ills than we would generally give them credit for. In the experience that I have had I have radiographed many teeth in which the root canals were only partially filled leaving a dead space at the root which harbored infected material. I have found teeth where permanent fillings have been placed over cotton with undrained abscesses at the roots. This seems to me to be analogous to the buried sponge within the abdominal cavity and although a small matter can give rise to serious pathology in distant parts. Crowns that misfit the tooth, and poorly overlap cover up dead spaces in which lodge pathogenic and putrefactive bacteria.

It has been estimated that a well developed case of pyorrhoea secretes from one to three ounces of pus within twenty-four hours and that most of this is swallowed. In infective processes at the roots of teeth we have no way of estimating the amount of bacteria and their toxins that are absorbed directly

into the circulation. Toxins from the oral cavity may show a selective affinity for certain tissues, the endothelial tissue may bear the brunt of the attack causing rheumatic arthritis in the different joints of the body or it may be the endocardium with the consequent serious result. Salicylates help, but why not find the cause? Osteomyelitis has been known to have had its origin in the mouth. Chronic anemias in which the causative factor is difficult to locate may have their origin here. Persistent headaches in which the cause is obscure—look in the mouth. The cause may be an infective granuloma at the root of some tooth or an impaction. Should there be an ear ache of unknown cause, look at the teeth. In recurrent attacks of bronchitis and tonsillitis, reinfection may be caused from a pus focus within the jaw. In pain in the region of the fifth cranial nerve, never fail to look at the teeth. There is a possibility that the origin of the tic may be at the root of some tooth. Should it be an iritis—look in the mouth.

Thyroiditis may be caused by a septic pocket within the oral cavity. The digestive tract may be the sufferer. Acute and chronic indigestion with auto-intoxication is frequently caused by sepsis from this source. It has been thought that gastric ulcer may be primarily due to a septic embolus lodging in the blood vessels of the stomach wall; investigate. Some have thought that appendicitis may be due to the swallowing or absorption of pus from the oral cavity.

On the 15th day of June I operated a case of acute perforative appendicitis. Two weeks following I made a microscopical examination of the pus and it showed the presence of streptococcus viridans in pure culture. History of the case revealed the fact that the patient had had an ulcerated tooth four months previous. X-Ray showed an abscess at the apex of the root. The tooth was pulled and pus from the abscess showed streptococcus viridans.

Given a history of gallstones we invariably have a history of some previous infective process, stomach trouble, indigestion, dysentery, etc. It is said that bile salts crystalize about a bacterial nidus or epithelial debris. Infective processes within the mouth may be the fore-runner of all of these. The continual elimination of toxins from this source by the kidneys predisposes to nephritis. It is the

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generally accepted idea that arthritis deformans is due to the action of bacteria and their toxins. Where is the focus of the infection? Osler says that pyogenic cocci have been found in the lymph nodes in Hodgkins disease. We know that the cervical lymph nodes are usually the first affected. Where do the cocci gain entrance to the lymphatic circulation? The generally accepted theory is that diabetes mellitis is due to a degeneration of the Islands of Langerhans and the adjacent parenchyma of the pancreas. Could not the influence of bacteria and their toxins give rise to this condition? Good cells do not degenerate without cause. Where is the original focus of infection? These queries are put with the idea of exciting more investigation along this line. Nerve tissue may be affected by degenerative changes caused by oral toxins. I have in mind now a case of multiple sclerosis in which the removal of infected teeth brought about an amelioration of the symptoms and a marked general improvement. Neuritis affecting the sciatic is quite common in the presence of oral infection.

The history of a typical case follows: Mr. W. H. G. Stockman, age 59, states that until 50 years of age he was rugged and healthy and with the exception of typhoid at 16 and scarlet fever at 20 his history is negative. About the first of September eight years ago following a hard day's work in the field he suffered pain in the small of the back and in the legs. After this the pain localized in the region of the right sciatic nerve and persisted about three months. All of this time there was more or less pain in the lumbar region which gradually extended up to the shoulder girdle so that during the past two years he has been unable to put on his coat unaided. His appetite is indifferent, sleeps poorly, is restless, and the bowels are constipated.

Examination shows a man of medium build, markedly stooped, who walks with a cane. Complexion sallow, tongue coated, teeth poor with evidences of pyorrhoea, gold crown over the first upper left bicuspid (says that it was put on eleven years ago). Marked atrophy of the muscles of the shoulder girdle, stiffness of the back and atrophy of muscles of the right leg. Chest and abdomen negative. Urinalysis shows no organic change in the kidneys. Leucocyte count 12,500. Radiogram of the upper left bicuspid shows a crowned tooth with a peg in the lower half of the root canal. The upper half shows no shadow and is devoid of filling. There appears to be absorption of the end of the root and it lies within an abscess cavity about the size of a split pea. A sinus is seen extending from the abscess

to the space between the bicuspid and the lateral incisor. Following the removal of the diseased teeth he suffered a severe reaction from the liberation of additional toxins into his circulation with an iritis which lasted about a week. This was followed in a few weeks by a slight improvement. If he fully recovers from the effects of the intoxication within a year I shall think it remarkable.

In any of the foregoing conditions it is important to ascertain if the patient has at any time had a so-called ulcerated tooth, if so, the pyogenic focus may still be draining its septic contents into the circulation and discharging pus directly through a sinus into the oral cavity. The examination of the oral cavity should never be overlooked. I do not mean a casual glance at the tongue but a close and minute inspection. There are many cases in which there will be no pain or discomfort in the jaw calling the attention of the patient to trouble as the remote effect of suppuration may far overshadow the real cause. Crowned teeth, especially those that have been crowned a number of years should be carefully examined. Retraction of the gum line means trouble, and congestion of the mucosa over the affected tooth and adjacent process should naturally arouse suspicion of trouble underneath. The tongue is coated and there is a leucocytosis of moderate degree.

A radiograph will tell the condition of the root canal, condition of the bone at the apex of the tooth, the condition of the peridental membrane, and whether or not there has been absorption of the root end. Should there be a crown it will tell how well it fits and the amount of dead space between it and the tooth. In all of the conditions that I have enumerated the infection may have its origin in the tonsil or nasal sinuses. It is well to learn whether the patient has had a peritonsillar abscess. If that is the case and there should be a congestion of the anterior pillars and the tonsils have shrunk to a mass of scar tissue over the old abscess, have them cleaned out.

An abscess at the root of a tooth is just as truly a surgical condition as though it were in the appendix or any other organ, and should be attacked with great vigor before secondary trouble arises in distant organs or tissues. It may seem that I have encroached

upon the field of the dentists somewhat, but if the causes of some of our general conditions lie within their jurisdiction it seems to me that we should work hand in hand with them in clearing up these suppurations within the oral cavity and minimize the detrimental effects that are sure to follow. I believe that the topic that I have chosen contains much food for serious thought and consideration and that the last word in relation to this very important subject is yet to be spoken.

DISCUSSION.

Dr. Buckley, Beatrice.—I cannot let this paper of Dr. Stearns' go without saying one thing. A year ago at our County Medical Society in Gage county, we had a joint session of physicians and dentists. We got together and had a heart to heart talk on oral infections. They had been doing a lot of hard work and we had been overlooking it. We knew that; and we talked it over. The meeting was very enthusiastic and the results have been highly beneficial. Our results have been better than they ever have been before, and the physicians have been paying much more attention to oral infections. I want to recommend this to other societies.

Dr. Hohlen, Lincoln.—I think it is the duty of every surgeon in every case of gastro-intestinal disease, to look after the teeth as well. I make it a general rule to remove infected teeth wherever necessary.

Smallpox Ulcer of the Cornea. *

J. Lue Sutherland, M. D., Grand Island.

Little mention is made of smallpox ulcers of the cornea in either the standard textbooks or current medical literature. Smallpox is mentioned as an aetiological factor in corneal ulcer. When we take into consideration that the skin, conjunctiva and cornea are of the same origin embryologically, the only wonder is that such a condition is not of more frequent occurrence. In my personal practice of a little more than a third of a century, while I have seen numbers of cases of variola, the case which I am about to report is the only one, giving rise to corneal ulcer that I have ever seen.

The personal and family history of the patient is immaterial; a woman in the thirties, mother of three children who are apparently healthy, has a comfortable home and is comfortably provided for. On the morning of January 13th, last she awoke with a smarting and burning pain in the left eye. It was red and swollen as she described it to me some three weeks later. She did not think it of sufficient importance to need medical attention but bathed

it in cold water, tied a handkerchief over it and so continued to treat it for a period of just one week when a smallpox eruption appeared upon the face and other parts of the body though more upon the face than elsewhere. The disease ran a typical though mild course but the eye instead of improving as the eruption subsided became more inflamed and painful and the vision became hazy. They made application to the city physician and quarantine was released at the expiration of the minimum time in order that the eye might be given appropriate attention. Her first visit to my office was Feb. 3d, just three weeks from the beginning of the eye symptoms, and the conditions then were as follows: a typical, grey infiltration upon the lower nasal quadrant of the left eye at the sclero-corneal junction upon the apex of which was a distinct pustule. There was the regulation grey opacity surrounding the ulcer which upon the cornea was quite superficial, slightly fan-shaped and extended almost to the pupillary margin.

Whether the treatment in any way interfered with or modified the natural clinical process I am not prepared to say, but it exhibited all the phases that might be expected of a smallpox pustule in such a location and in addition there was a pronounced iritis with all the attendant phenomena of lachrymation, photophobia, pain in the eye and entire temporal region of that side, the pain being much worse at night. There was anterior synechia of the iris immediately underneath the ulcer as easily demonstrated by the instillation of atropin which persisted for a week though a 1% solution of atropin was used three and sometimes four times a day as long as the pain lasted.

My first treatment consisted of a thorough cauterization of the pustule with a 50% solution of trichloroacetic acid, being careful to limit the application to the pustule only which was done three times at intervals of two days, after which there being no more evidence of pus, the treatment consisted in the regulation management of simple ulcer complicated by iritis. The progress was satisfactory.

The opacity remaining after the ulcer had healed, though quite superficial, continued to advance in the direction of the pupil, and did not yield as readily to the local application of dionin as one would expect. Dionin was used twice a week each time being followed by intense reaction.

At the last treatment however, which was only a few days ago, there was but a faint trace of opacity remaining. Vision is normal and with the exception of a very slight notch in the pupillary margin of the iris

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immediately under the original site of the ulcer, the eye is normal.

As we will observe, the ulcer in this case cannot rightly be classed as a complication or sequel, but a primary manifestation of the disease, and after three weeks without treatment or interference of any kind seemed to still be in the developmental stage though the disease which had caused it had fully subsided.

DISCUSSION.

Dr. H. B. Lemere, Omaha.—I think the use of trichloracetic acid in such cases would be proper procedure.

Dr. Dayton, Lincoln.—Think result of treatment good. Formerly a pustule meant the loss of the eye. Present day good results probably due to disease being milder and more careful treatment. Case is remarkable in existing in eye before the skin eruption. Dangers of pustule are perforation and incarceration of iris in addition to opacity resulting. Dr. Dayton has used trichloracetic acid. Pustule causes considerable loss of tissue and Dr. Sutherland is to be congratulated on result.

Dr. C. L. Mullins, Broken Bow.—Reported a case of smallpox pustule of cornea. Used trichloracetic acid.

Dr. Homer Davis, Genoa.—I never have seen a case of ulceration with smallpox, although I have seen a good many cases of smallpox, but a disease very closely akin to smallpox is varicella, and it has been my lot to see several cases. I remember that two of these cases proved to be very tractable, easily amenable to treatment, not like the ordinary grey ulcer that one sees in general practice, but calling for cauterization and all the skill that one has to bring pressure in treatment of that trouble.

Dr. Sutherland, in closing said: I have very little more to say. When Dr. Davis spoke of varicella, one might think that he thought probably there was a mistake in the diagnosis. If there was I am not responsible because I did not treat the case in the beginning, but other doctors pronounced it smallpox, and all the other members of the family had it. And in regard to the time, as I said in my paper, the first intimation, or the first notice that she had, or warning that she had that she was going to have anything was a pain in the eye which woke her up in the morning, and then she was sick for a week until the eruption came out. The disease ran a mild course, but the eye did not improve as the eruption subsided. When she came to me the ulcer was three weeks old. It was a week before the smallpox, and two weeks after the smallpox, and it was still determined by distinct pustule. The ulcer was very dense and grey, and she complained of pain in all that side of the head. After the absorption of the infiltration, the eye was perfectly smooth, but there is a little notch in the iris yet, where it would not loosen on the instillation of atropin although the rest of the iris responded very readily.

I took particular pains to get as nearly as she could tell me the clinical history before it came into my hands, and I have kept notes on the case since it came into my hands, and as I stated before it was a new thing to me and very interesting. I thought of that case a great deal, and felt very good when it began to come our way. It was the original beginning of the disease, the primary source of the disease, and when it came to me three weeks after, it was still in its developmental stage.

Dr. John B. Murphy—An Appreciation.

A. F. Jonas, M. D., Omaha.

Dr. John Benjamin Murphy died at Mackinac Island, Michigan, Aug. 11, 1916, from aortitis.

He was born on a farm near Appleton, Wisconsin, Dec. 21, 1857, and at the time of his death he was in his 59th year. His early years were spent on a farm. His education was obtained in the schools of Appleton and he was graduated from its High School in 1876. His medical degree was conferred on him by Rush Medical College in 1879. He served an internship in Cook County Hospital, and later formed a partnership with the late Dr. E. W. Lee of Chicago. He studied in Europe two years, beginning in 1882.

He entered upon his chief life work, that of a teacher in 1884. He accepted the appointment of lecturer on Surgery in Rush Medical College. We find him in 1892 as Professor of Clinical Surgery in the College of Physicians and Surgeons, Chicago, where he remained until 1901 when he was called to the chair of Surgery in the North Western University Medical School a position which he occupied until 1905 to 1908 when he became a member of the surgical teaching force of Rush Medical College under the leadership of the late Nicholas Senn. In 1908 he was induced to return to the North Western Medical School as the head of surgery, a position which he retained until the time of his death. He found time to occupy a professorship for many years in the Post Graduate Medical School.

His services as chief of the Surgical Staff of Mercy Hospital began in 1895 and terminated with his passing away.

As attending or consulting surgeon he was active for upward of thirty years on the staffs of Cook County, St. Joseph, Columbus,

West Side, and Crippled Children Hospitals in the city of Chicago.

The profession recognized his great talents by bestowing on him almost every honor it had to give. He was elected orator in surgery in 1898 when he delivered his memorable address at the Denver meeting of the A. M. A. on the treatment of lung tuberculosis by the use of nitrogen gas to produce an artificial pneumothorax.

He was elected president of the American Medical Association at its St. Louis meeting in 1910. He occupied the office of President of the Clinical Congress of Surgeons of North America and presided at its London meeting in 1914. He has also occupied the presidency of the Chicago Medical Society, Illinois State Society, Mississippi Valley Assn., American Surgical and Gynecological and Pathological Society, etc.

He was a member of many national and international scientific bodies, among which were the following: American Medical, American Surgical Association, American Association of Obstetricians and Gynecologists, Southern Surgical and Gynecological Associations, and the International Surgical Society. He was life member of the Deutsche Gesellschaft fur Chirurgie. He also enjoyed an honorary membership in the Royal College of Surgeons in England and the Societe de Chirurgie de Paris and others.

His contributions to surgical literature were numerous, we may say almost continuous. His researches lead him in many directions and all were characterized by thoroughness and completeness. The great value of his productions consisted in the advances in the practical application of surgical principles. He possessed the rare faculty of taking up and carrying to definite results, methods originally proposed by others, methods which had failed because the originators had been unable to carry them to definite and practical conclusions as Murphy demonstrated so ably by his button, his arthroplasty and his bone work.

Among his many papers and monographs may be mentioned his early advocacy of a prompt and immediate operation for acute appendicitis; also his contribution on the

anastomosis button entitled "Intestinal Anastomosis and Approximation Without Suture," 1893. This memorable production was delivered at the Milwaukee meeting of the A. M. A. Those who attended that meeting still recall the tremendous ovation that greeted him. His work in 1897, a research on suture of the arteries and veins was pioneer work. He presented a paper describing a case in which he had made an end to end suture of the femoral artery, together with an exhaustive resume of the literature on the subject under the title of "Resection of Arteries and Veins Injured in Continuity: End-to-End Suture." This monograph gave a new impulse to researches in blood vessel surgery, and many others inspired by Murphy's work have done brilliant work.

Neurological surgery occupied his mind for several years and finally culminated in a fine monograph in 1907 under the caption "Surgery of the Spinal Cord." In 1912 appeared his great work in plastic surgery of the joints under the title "Contributions to the Surgery of Bones, Joints and Tendons," and soon after was published his eminently practical work on joint fractures, bone transplants and the repair of deformities after fractures. Perhaps no procedure is more widely employed than his drip method for the treatment of peritonitis.

A detailed list of all contributions that have come from his pen during an active professional life extending over a period of nearly thirty-six years would carry us beyond the space allotted to this subject. He modified and improved many surgical procedures; he proposed and carried to a successful conclusion many original methods, some of which were epoch making. He possessed the rare talent of imparting a knowledge of his experiences clearly by concise and well written articles. His greatest reputation rested on his ability as a teacher. No American instructor commanded larger audiences than he. No one ever attended his clinics at Mercy Hospital, who was not impressed with his forcible presentation of his work. His technical skill was rare, the many methods of illustration he employed in the way of charts, photographs, skiagrams, lantern slides, etc.,

were unusual. But above all, his forcible speech and his impressive personality carried lasting conviction to his auditors. When Murphy occupied a place on the program of any medical society a large and attentive audience was assured. He always spoke to the point, wasted no words over speculative matters and he knew when it was time to sit down leaving his audience with a regret that he had finished.

Murphy was a western man and he was one of a coterie of surgeons, both dead and living, who made western surgery prominent and placed it on a level with that of any part of the world. We almost unconsciously rank him with the late Nicholas Senn and Christian Fenger. They were the teachers of Murphy, but they lived long enough so that he became their contemporary. They all lived and taught in the same period and the same city. They exerted an influence on the present generation of western surgeons that was elevating and that created in their pupils lofty ideals.

Dr. Murphy was given the Lastare medal by Notre Dame University in 1902. The Pope elevated him to a Knight Commander of the Order of St. Gregory the Great in 1916. The University of Illinois conferred on him the degree of L. L. D. in 1905. The L. L. D. was also conferred by the Catholic University of America in 1915, and the University of Sheffield, England, conferred the degree of M.Sc in 1908.

Dr. Murphy possessed a pleasing personality and an engaging manner. In spite of a physical infirmity, he possessed an enthusiasm which he imparted to his students and associates. He imbued them with a desire for scientific endeavor. His friends were numberless. He was fortunate in the possession of an unusually charming, brilliant and beautiful wife who not only was a hostess of rare tact but who seconded him in his scientific work. While he was doing experimental work with his button on dogs she frequently was his assistant, and was thoroughly familiar with all his important work.

Dr. Murphy's life was full of splendid work; his success was unusual; honors were many and fully deserved; he had many loyal

friends; his work continued beyond a generation; his wife and family were ideally devoted, and when the end came he might have closed his career with the beautiful words of Prof. Franz Koenig of Germany who on his death bed said "es ist ein langes und schoenes Leben gewesen."

Notes—General.

Sir T. Clifford Allbutt has been elected president of the British Medical Association. A message of congratulation was at the time sent to him on the attainment of his eightieth birthday which occurred on July 20.

The forty-fourth annual meeting of the American Public Health Association will be held in Cincinnati, October 24 to 27, under the presidency of Dr. John F. Anderson, of New Brunswick, N. J., formerly assistant surgeon general of the United States Public Health Service.

The Chicago commissioner of health has appointed a committee to undertake research on infantile paralysis. The members are: Dr. M. Herzog, chairman, and Drs. K. Meyer, H. B. Thomas, A. Hoyne and A. K. Armstrong.

According to the report presented to the British Medical Association, more than 400 British physicians have lost their lives at the front in the past twelve months.

Twenty graduates of American universities left Paris for the front on August 16, as members of a newly formed section of the American ambulance field service.

County Society Notes.

The Fillmore County Medical Society met at Milligan, Tuesday, August 29, 1916. The Society was the guest of Dr. V. V. Smrha. A large number of physicians and surgeons from Lincoln and other points were present.

The Custer County Medical Society held its annual picnic at New Helena, August 8, 1916. Those present were F. A. Burnham, Arnold; C. O. Wills, Anselmo; A. R. Downing, J. H. Morrow, Merna; R. D. Bryson, Callaway; E. A. Hanna, Ansley; J. E. Dunn, Arnold;

J. C. Stadden, Berwyn; G. I. Sellon, Madge Potts, W. T. Hurst, C. L. Mullins, Broken Bow.

Dr. John B. Potts of Omaha was the guest of the Society. The program consisted of papers on poliomyelitis and otitis media. The Custer County Society meets on the second Tuesday of February, May, August and November of each year. Dr. Frank A. Burnham of Arnold is president and Dr. C. L. Mullins of Broken Bow is secretary.

Dr. C. C. Green of Beaver City has just returned from Boston where he has been doing post graduate work in the Harvard Medical School.

Dr. F. A. Brewster of Beaver City is at Rochester, Minnesota, attending the Mayo surgical clinics.

Dr. W. R. Boyer of Pawnee City is in Chicago doing post graduate work.

Dr. J. C. Waddell of Pawnee City has just returned from a two months' surgical assistantship in New York City.

The August meeting of the Buffalo County Medical Society was held in the rooms of the Kearney Commercial club. The meeting was preceded by a dinner. The dentists of Kearney were the guests of the evening. Attendance 9 physicians and 6 dentists.

At this meeting Dr. Penn of Ravenna was reinstated as member in good standing of the Buffalo County Society.

Dr. John Denzler (D. D. S.) of Kearney read a paper on Oral Prophylaxis which was followed by a general discussion.

Dr. Charles Lucas of Shelton gave a report of two cases of perirenal abscess.

The next meeting of the society will be held at Gibbon, Neb., on the first Thursday evening in October. The social features of our meetings seem to meet with general approval which the increase in attendance demonstrates.

L. M. Stearns, Secretary.

Short History of Beginning of the Elkhorn Valley Medical Society.*

P. H. Salter, M. D., Norfolk.

In September twenty years ago, or to be

more exact, in September, 1896, I conceived the idea that we should have a medical society in this part of the State. A great many of the Doctors did not go to the State society and we are not very well acquainted with each other, and again our fees were not what they should be nor the charges uniform. Accordingly I sent out a circular letter to all of the doctors up and down the Elkhorn Valley and in the contiguous territory, asking for an expression of opinion as to the desirability of such a society. To this first letter I received some very encouraging replies and among them was one from Dr. F. A. Long, telling me that he had been thinking of the same thing and he thought I was on the right track. He and I got together and we sent out the following letter:

"Dear Doctor:

You are earnestly requested to attend a meeting to be held at the Oxnard Hotel, Norfolk, Neb., at 2 p. m., Tuesday, December 29, 1896, for the purpose of organizing a District Medical Society of the regular medical profession within convenient distance of Norfolk.

It is believed that the talent of the medical profession within a radius of say, fifty miles, of this place, can be organized into a strong and substantial working body, with great resulting benefit to the profession, scientifically, socially and financially. Responses received to a circular sent out some time ago have all been of the most encouraging nature.

The names of those who have encouraged the organization of such a body are appended to this call: A. Bear, F. A. Long, P. H. Salter, W. H. H. Hagey, G. B. Richards, A. B. Tashjean, D. R. Daniel, F. A. Bryant, Chas. Inches, A. B. Cherry, H. G. Leisenring, W. L. Crosby, I. J. Daniel, W. L. Bowman, W. T. Mason, James B. Cain, V. W. Swan, P. H. Metz, C. B. Little, A. E. Scofield, J. J. Williams, E. C. Underburg, E. S. Blair, Walter Key, E. Tanner, A. J. Clark, E. W. Minton, B. F. Gay, J. H. Thompson.

The first meeting was held at the Oxnard Hotel, Norfolk, and it was decided to call the organization "The Elkhorn Valley Medical Society." The following are the minutes of this first meeting:

*Read before Elkhorn Valley Medical Society, Norfolk, August, 1916.

"Pursuant to call previously issued over the signature of some thirty physicians the following medical gentlemen met in the Parlors of the Oxnard Hotel at 2 p. m. for the purpose of organizing a medical society of the profession tributary to this place.

A. Bear, Norfolk; F. A. Long, Madison; Geo. F. Keiper, Norfolk; W. T. Mason, Humphrey; W. H. H. Hagey, Norfolk; E. W. Minton, Oakdale; E. Tanner, Battle Creek; W. F. Conwall, Neligh; D. R. Daniels, Norfolk; Wm. C. Campbell, Creighton; F. A. Bryant, Norfolk; J. M. Alden, Pierce; R. J. Chrystal, Osmond; Wm. Cargen, Newman Grove; P. H. Salter, Norfolk; G. B. Richards, Norfolk; A. E. Scofield, Tilden; J. O'Keefe, Battle Creek; W. O. Lea, Hoskins; A. B. Tashjean, Norfolk; Dr. B. F. Gay, Pierce.

Dr. Bear called the meeting to order and in the dual capacity of the oldest practitioner in the Elkhorn Valley and as Mayor of Norfolk delivered an address of welcome which was heartily applauded.

A temporary organization was effected by electing Dr. Bear chairman and Dr. Long, Secy. On motion of Dr. Alden, it was decided to organize a society to be known as the Elkhorn Valley Medical Society with no restrictive limit to the territory from which membership may be received.

By motion of Dr. Chrystal, meeting resolved itself into committee of the whole for the purpose of adopting Constitution and By-Laws.

Dr. Long offered a Constitution and By-Laws based on that of the State Medical Society which were adopted as a whole after amending Article IV, meetings, by inserting Norfolk as permanent place of meeting, and number of meetings quarterly, the date to be fixed by the Trustees, and after fixing the membership fee at one dollar, and yearly dues at one dollar, the committee of whole then arose.

On motion a committee on Credentials consisting of Drs. Alden, Richards, and Conwell was appointed and after a short recess reported all those present and whose names appear on this record as entitled to membership. Report adopted. It was announced that letters of regret had been received from Dr. Chas. Inches, Scribner, Dr. H. G. Leisenring, Wayne, Dr. F. H. Nye, Plainview, Dr. F. E. Stack, Humphrey, Dr. J. A. Clark, Albion, each of these gentlemen expressing a desire for membership.

On motion Drs. Inches, Leisenring and Nye were elected to membership, and no action was taken on these last two names. The Society then proceeded for permanent organization, the chair appointing Drs. Mason and Chrystal, Tellers. The following officers were elected for the ensuing year:

- President—Dr. A. Bear.
- Secretary—Dr. F. A. Long.
- Vice-President—Dr. J. M. Alden, first.
- Vice-President—Dr. P. H. Salter, second.
- Treasurer—Dr. G. B. Richards.

A short recess was then had to pay dues, after which \$2.75 was voted Dr. Salter to reimburse him for money spent for circulars sent out.

Dr. Inches who had been invited to read a paper on typhoid fever having sent his regrets Dr. Minton opened the discussion of the subject and was followed by Drs. Tanner, Salter, Tashjean, Conwell, Alden and Gay.

After giving a vote of thanks to landlord Spear the Society adjourned at 5 p. m.

F. A. Long, Secy."

P. S. The president appointed the following standing committees:

- Credentials: Alden, Conwell, Richards.
- Arrangements: Salter, Hagey, Tashjean.
- Grievance: Minton, Chrystal, Mason.
- Necrology: Conwell, Daniels, Gay.
- Auditing: Scofield, Tanner, Campbell.

Since our first meeting twenty years ago, we have had some very enjoyable gatherings some of which stand out particularly and clearly in my memory. We have found that we have many good fellows among our neighbors and made many good friends, but am sorry to say have lost a few. I notice in looking over the original list of those who were the first members, that out of thirty doctors some seven or eight have passed to the Great Beyond. Of the others some ten have moved away and it leaves less than one-half of the original members in our neighborhood today.

Our meetings which were originally held in Norfolk have gradually drifted away, and this is the first meeting we have had here in the past three years. The last one that was held here, I think, was at the State Hospital, where the doctors in charge gave us a most enjoyable time. Two years ago we met in O'Neill, and there I enjoyed one of the best meetings that the Elkhorn Valley Society ever had. There have been many other meetings which were enjoyable to me, and I hope that all of you that are with us today may come to the conclusion that this is one of the best meetings we have ever had.

Officers of Nebraska County Medical Societies.

Adams.

President, Dr. E. Dolphus Hasmer, Hastings; Sec.-Treas., Dr. C. B. Galbreath, Hastings. Number of members, 31.

Box Butte.

President, Dr. H. H. Bellwood, Alliance; Sec.-Treas., Dr. George J. Hand, Alliance. Number of members, 8.

Boyd.

President, ———; Sec.-Treas., Dr. R. C. Hawkins, Butte. Number of members, 8.

Boone.

President, Dr. J. W. B. Smith, Albion; Sec.-Treas., Dr. G. W. Sullivan, St. Edward. Number of members, 8.

Brown.

President, ———; Sec.-Treas., Dr. James C. Tucker, Long Pine. Number of members, 2.

Buffalo.

President, Dr. C. H. Fox, Kearney; Sec.-Treas., Dr. L. M. Stearns, Kearney. Number of members, 19.

Burt.

President, Dr. Herbert Cooper, Craig; Sec.-Treas., Dr. S. A. Swanson, Oakland. Number of members, 12.

Butler.

President, Dr. T. J. Vanderhoof, Rising City; Sec.-Treas., Dr. C. E. Palmer, David City. Number of members, 13.

Cass.

President, Dr. A. C. Welch, Weeping Water; Sec.-Treas., Dr. O. E. Liston, Elmwood. Number of members, 9.

Cedar.

President, Dr. C. C. Sackett, Laurel; Sec.-Treas., Dr. L. Stark, Hartington. Number of members, 11.

Chase-Dundy-Hayes-Hitchcock.

President, Dr. Byron G. Bailey, Wauneta; Sec.-Treas., Dr. Luman B. Swaggart, Trenton. Number of members, 10.

Cheyenne.

President, Dr. H. E. Mantor, Sidney; Sec.-Treas., Dr. F. W. Scott, Lodge Pole. Number of members, 6.

Cherry.

President, ———; Sec.-Treas., Dr. A. N. Compton, Valentine. Number of members, 5.

Clay.

President, ———; Sec.-Treas., Dr. J. W. Archerd, Clay Center. Number of members, 14.

Colfax.

President, ———; Sec.-Treas., Dr. E. F. Zoerb, Clarkson. Number of members, 7.

Cuming.

President, Dr. H. W. Francis, Bancroft; Sec.-Treas., Dr. H. L. Wells, West Point. Number of members, 9.

Custer.

President, Dr. F. A. Burnham, Arnold; Sec.-Treas., Dr. C. L. Mullins, Broken Bow. Number of members, 20.

Dawson.

President, Dr. L. H. Fochtman, Cozad; Sec.-Treas., Dr. M. S. Moore, Gothenburg. Number of members, 14.

Dixon.

President, ———; Sec.-Treas., Dr. C. L. Phillips, Dixon. Number of members, 9.

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President, Dr. C. A. Hull, 200 Bee Bldg, Omaha;

Sec.-Treas., Dr. Roy A. Dodge, 438 Brandeis Theatre Bldg., Omaha. Number of members, 223.

Dodge.

President, Dr. R. A. Davies, Arlington; Sec.-Treas., Dr. S. A. Preston, Fremont. Number of members, 35.

Fillmore.

President, Dr. T. C. McCleery, Exeter; Sec.-Treas., Dr. V. V. Smrha, Milligan. Number of members, 13.

Franklin.

President, Dr. J. P. Feese, Franklin; Sec.-Treas., Dr. Ella P. Sumner, Bloomington. Number of members, 11.

Furnas.

President, Dr. F. H. McCabe, Holbrook; Sec.-Treas., Dr. E. E. Cone, Oxford. Number of members, 9.

Gage.

President, Dr. G. A. Sloss, De Witt; Sec.-Treas., Dr. F. W. Buckley, Beatrice. Number of members, 32.

Hall.

President, Dr. L. Phelan, Grand Island; Sec.-Treas., Dr. E. G. Johnson, Grand Island. Number of members, 20.

Hamilton.

President, Dr. E. A. Steenberg, Aurora; Sec.-Treas., Dr. J. M. Woodard, Aurora. Number of members, 14.

Harlan.

President, Dr. W. G. Rundle, Orleans; Sec.-Treas., Dr. S. M. Baker, Alma. Number of members, 8.

Holt.

President, Dr. E. T. Wilson, O'Neill; Sec.-Treas., Dr. J. P. Gilligan, O'Neill. Number of members, 12.

Howard.

President, ———; Sec.-Treas., Dr. J. C. Stadden, Boelus. Number of members, 9.

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Lancaster.

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Otoe.

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Pawnee.

President, Dr. W. T. Johnson, Pawnee City; Sec.-Treas., Dr. J. C. Waddell, Pawnee City. Number of members, 8.

Phelps.

President, Dr. W. A. Shreck, Bertrand; Sec.-Treas., Dr. P. A. Sundbury, Holdrege. Number of members, 6.

Pierce.

President, Dr. W. T. Craft, Pierce; Sec.-Treas., Dr. E. H. Nye, Plainview. Number of members, 8.

Platte.

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Polk.

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Red Willow.

President, Dr. Z. L. Kay, McCook; Sec.-Treas., Dr. Roland R. Reed, McCook. Number of members, 11.

Richardson.

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York.

President, Dr. F. W. Karrer, Benedict; Sec.-Treas., Dr. E. G. Zimmerer, Thayer. Number of members, 19.

BOOK NOTICES.

The Treatment of Infantile Paralysis. By Robert W. Lovett, M. D., Boston. P. Blakiston Son & Company, Philadelphia, 1916. This volume by one of the leaders of American Orthopedics is indeed timely and valuable. There are chapters on the pathology, symptoms, diagnosis, mortality and prognosis of the disease, but treatment is the principle theme of the book. There is a chapter on Muscle Training and another on the Spring Balance Muscle Test. It will be of extreme interest and value to general practitioners and published at this time will be of unusual value to many.

The Diagnosis and Treatment of Heart Disease. Practical Points for Students and Practitioners. By E. M. Brockbank, M. D. Clinical Lecturer on Disease of the Heart, Dean of Clinical Instruction, University of Manchester. Paul B. Hoeber, 1916, page 120, price \$1.25. This book is of pocket size, but the student who masters it is very well equipped to handle most cardiac cases which come under his observation. The final chapters on treatment are of unusual practical interest.

Gynecology, by William P. Graves, Professor of Gynecology at Harvard Medical School. Surgeon-in-chief to the Free Hospital for Women, Brookline. Consulting Physician to the Boston Lying-in-Hospital. W. B. Saunders, 1916. Sections on treatment are well written and contain the most recently accepted methods. The various gynecological operations are fully described and profusely illustrated by the author.

The Art of Anesthesia. By Paluel J. Flagg, M. D. Anesthetist to Roosevelt Hospital and Instructor in Anesthesia to Bellevue and Allied Hospitals, New York. J. B. Lippincott Company, 1916. This book is intended as a groundwork upon which the general practitioner, interne and student may acquire a more extensive knowledge of the art of anesthesia. It is a resume of the entire field of anesthesia general, local and mixed.



Waukesha Springs Sanitarium

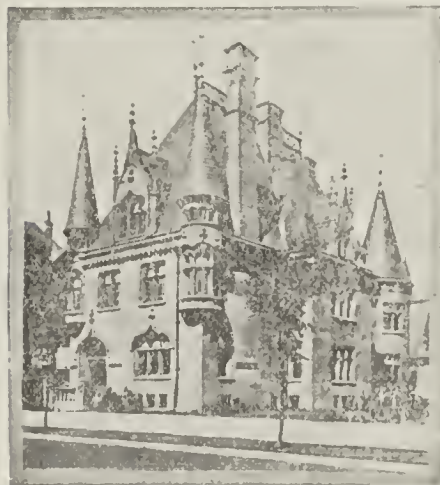
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THE NEBRASKA STATE MEDICAL JOURNAL



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Uterine Cancer.

Earl B. Brooks, M. D., Pawnee City.

One person in eleven over forty years of age dies of cancer. One woman in eight and one man in fourteen over forty years of age is attacked by the disease with fatal results. One out of every four cancer deaths in women is from cancer of the female genital organs; from cancer of the uterus, ovaries, vagina or vulva, and of these, deaths from cancer of the uterus far outnumber those from any other organ. The gloom of these statistics is relieved in a measure, however, by the knowledge that: "Cancer is curable because it is at first a local and not a constitutional or blood disease. It begins in one spot as a small growth which in the early stages can be removed. If this is done by a competent surgeon every trace of the disease can be removed so that it will not return."

These facts enumerated regarding cancer in general apply with equal force to cancer of the uterus. Stress is laid upon the early recognition and prompt removal of the diseased tissue as affecting the prognosis. The surgical treatment of cancer has advanced practically to the limit of efficiency so that further progress in overcoming this disease by surgical means must come through early examination and operation. It is a fact that the percentage of operability of these cases in our American clinics is less than half that of the average German clinic. Taussig suggests, "The fact that our percentage of absolute cures is small compared with the German and Austrian clinics is not due to greater operative mortality or to narrowing the

limit of operability. It is not due to lack of boldness or skill on the part of the surgeon, but to the character of the material that comes for operation. Women are negligent of the early symptoms and the average practitioner careless of diagnosis or inclined to try palliative measures until the disease is too far advanced." Here is an indictment against both the laity and the profession, and a little reflection will prove the truth of the charge in each case.

Most of us, especially the gynecologists will recall cases illustrative of the value of early diagnosis and prompt operation where the patients are restored to health and cures are permanent. Another group illustrates the folly of delay on the part of the patient in subjecting herself to direct examination through timidity, modesty or fear of cancer. In these cases we find all too frequently an advanced cervical carcinoma. Then there is a third group illustrative of the tragic results of delay on the part of the physician, through erroneous ideas of the symptoms of cancer, waiting for cachexia, pain, and foul discharge. In these cases death is the inevitable result.

Group two aptly illustrates the need of education of the laity along these lines. I think the first step in this matter of education is instruction as to the normal function of menstruation before we attempt to teach the symptomatology of disease. The appeal of the British Medical Association to midwives and nurses gives in plain terms the early symptoms of cancer and is as follows: "Cancer may occur at any age and in a woman who looks quite well and who may have no pain, no wasting or foul discharge and no

*Read before the Nebraska State Medical Association, Omaha, May, 1916.

profuse bleeding. To wait for pain, wasting or foul discharge and profuse bleeding is to throw away the chance of successful treatment. The early symptoms of cancer of the womb are bleeding, which occurs after the change of life; bleeding after sexual intercourse; bleeding slight or abundant, even in young women, if occurring between the usual monthly periods, especially if accompanied by bad smelling or watery discharge; thin watery discharge occurring at any age."

Much is being done along the line of education by the Clinical Congress of Surgeons, The American Medical Association, The American Society for the Control of Cancer and other organizations in the gathering of statistics and placing data and lectures in the hands of State Boards of Health, medical societies, nurses, social workers, women's clubs and furnishing newspaper and magazine articles.

It is incumbent upon every general practitioner to overcome the mistaken ideas, prejudices, timidity, shrinking from examination during bleeding, and other false notions of our women patients. We must take time to explain to them the importance and significance of these symptoms, and that a gynecological examination and diagnosis consists of two parts. First: the history or record of the patient's observations as to her irregularities of function and sensation. Second: the direct examination of the diseased organs. The profession is prone to be remiss on this point. We owe it to every patient presenting gynecological symptoms to insist on an internal examination at once. In some early cases, cases which promise most in the way of operability, it is impossible to make a positive diagnosis of cancer of the cervix without excision and microscopic examination of a portion of the tissue involved. (Percy of Galesburg, Illinois, advocates removing this tissue for examination with actual cautery rather than with the knife). In case of involvement of the uterine body a curettage and microscopical examination of the scrapings is necessary. In doubtful cases of uterine bleeding or discharge we may assume in the absence of any causal condition in the vagina or cervix that the trouble is in the

interior of the uterus. We then have to differentiate between a small fibroid, a polyp, an endometritis or a malignant condition.

Oftentimes the microscopical examination of a fibroid, polyp or hypertrophied endometrium which has been removed will exclude a malignant condition. Occasionally, however, the diagnosis is left in doubt through a continuance of the symptoms after the curettage. More recently the Abderhalden serum test for cancer has been developed to the point of reliability in the majority of cases. Ball states that, "As yet the test cannot be considered as strictly specific for the diagnosis of cancer. A positive reaction, however, should receive careful consideration before calling it erroneous." In such doubtful cases a positive Abderhalden reaction should furnish valuable corroborative evidence. If we avail ourselves of the various diagnostic aids at our command we will gain much precious time in the recognition and treatment of these cancer cases and will increase our percentage of permanent cures from five or ten per cent to fifty or sixty per cent.

The treatment of carcinoma of the uterus is, of course, the removal of the uterus. In America this is almost universally done through the abdomen. But what of the inoperable and recurrent cases? Fully thirty-five to forty per cent of the cases reaching the surgeon are beyond the possibility of a primary radical operation. Notwithstanding this discouraging outlook we are able by the use of various palliative measures to occasionally add months and even years of fairly comfortable existence to the lives of these unfortunate patients. Some of these methods of destroying or inhibiting cancer are the curette and cautery, acetone, zinc chloride and other escharotics, ligation of the blood supply, radium, autolysin, etc. Most of these have a certain number of clinical cures to their credit. Then too, observation has shown that by the use of these remedies in so called border line cases their destructive efforts have rendered possible a subsequent hysterectomy. Workers with radium pronounce it a valuable addition to our cancer therapy, not only for the treatment of inoperable and recurrent cases, but also as a prophylactic mea-

sure in operative cases. Radium definitely relieves suffering when used in the advanced stages of cancer. Its effects are superficial and do not exert a curative effect upon the disseminated disease as a whole. However, the betterment in these improved but not cured cases, is alone sufficient to justify its use. Kelly believes that every inoperable cancer of the cervix, uterus or vagina, provided general metastasis is not evident, stands a chance of at least one in four of cure by radium treatment, and that by joint use of radium and operation the one in four ratio may be raised to three in four. It will, however, take years to demonstrate the reported results as anatomic cures. In 1912, Percy following the lead of Byrne of New York gave to the profession a clearly worked out scheme of applying heat to these cases by means of the electric cautery. The principle of his treatment was that of disseminating heat wide of the site of the disease, thus raising the temperature of the surrounding tissue to a point at which cancer cells are destroyed and normal cells unaffected.

Experimentation shows that cancer cells are peculiarly susceptible to heat and are killed if raised to a temperature of 113° F. for ten to twenty minutes. Whereas, normal cells are not changed until the temperature exceeds 130° to 140°. Heat permeates living tissue more readily and effectually if maintained at comparatively low degree for a long time than if a high degree of heat is maintained for a short time. Thus the idea of Percy's treatment is that of heating and not carbonization.

Percy's technique includes the following:

1. Patient prepared as for an abdominal section.
2. Trendelenburg position.
3. Abdominal incision sufficient to admit one or two fingers in the pelvis. The fingers were used as a guide to the degree of heat, to direct the point of the cautery and at the same time support the cervix and protect the bladder and rectum.
4. A thermometer graduated to register 250° F. is inserted into the bladder and another prepared for insertion into the rectum in case necessary.
5. A water cooled speculum permits uninterrupted heating of the malignant area without the danger of burning uninvolved vaginal walls.
6. A perfect working cautery capable of generating more heat than one ever needs to command.

One of the points advanced in favor of the cautery over the roentgen ray or radium is this: the problem of treatment of inoperable cancer of the uterus is that of the destruction of the gross mass, and it is claimed for the cautery method that this is accomplished in a few minutes, whereas radium requires successive radiations extending over days and weeks. Another of the difficulties of radium and roentgen ray in attacking the gross mass of cancer tissue is that each agent breaks down many cancer cells and if drainage is not provided an over dose of broken down cancer cells may be absorbed and cause toxic death. With the heat technique drainage is provided.

I wish to report the following cases illustrative of neglect on the part of patients in presenting themselves for early treatment.

Case 1. Mrs. H., age forty-three, family history negative, always strong and robust, no serious illness except bladder irritability and painful urination at frequent intervals since a girl. She had had two spontaneous labors, the last in 1903. One miscarriage since. Patient consulted me March 30, 1915, for a sensation of dropping down in the pelvis as though something came almost to the vulva. She stated that for over a year she had known something was wrong. Periods had been regular and profuse and between the periods there had been a marked bloody discharge worse on straining at stool. Of late owing to the prolapsus there was difficulty in walking and there was frequent and sometimes painful urination.

Examination showed a second degree laceration of the perineum and relaxation of the vaginal walls. There was a fungoid or polypoid hypertrophied condition of the cervix which was friable and bled readily on slight manipulation. Posterior lip was involved but to a less degree than the anterior. Apparently no involvement of the vagina; uterus freely movable. A low amputation of the cervix and Emmets' perineorrhaphy was done. Microscopic section of the cervical tissue removed showed a malignant type of carcinoma.

Patient was brought to Omaha where Dr. Palmer Findley did a radical abdominal hysterectomy. Dr. D. T. Quigley gave a radiation with fifty-two milligrams of radium on April 17th, a second April 18th, a third April 28th the tubes being sewn into the raw wound, a fourth April 29th and fifth May 10th making 2,912 mg. hours.

Patient had a stormy convalescence. There was marked bladder irritability which we attributed at least in part to the radium. At the height of this bladder irritability patient urinated as high as 110 times in twenty-four hours. There was a double iliac phlebitis and at one time a cerebral embolus. The

patient finally gained sufficient strength to return home the latter part of June. She continued to gain for a couple of months. In September she had a slight influenza and following this she lost strength. There was a persistent unproductive cough and dyspnoea regardless of physical exertion. There was dullness beneath the second left rib near the sternum. At this time, about November first, we discovered a group of enlarged glands in the left supraclavicular space. There was an intermittent temperature and pulse of 120, blood examination showed R. B. C's; 3,040,000. W. B. C. 23,250 hemoglobin 65% to 70%. About December 1st the left side of the neck swelled flush with the ramus of the jaw within forty-eight hours. The swelling was soft and boggy. The dyspnoea was relieved and the temperature and pulse receded. About this time we began administration of the Horwitz-Beebe autolysin, at first 1 cc doses were given hypodermically every other day then 2 cc every day. We used in all three dozen 2 cc ampules. Under this treatment she gained strength for several weeks. The pain was not relieved and the retardation of the growth was slight, if any, as she gradually developed general metastases and died February 29, 1916.

Case 2. Mrs. M. (reported through the courtesy of my colleagues Drs. A. & B.) Age 53 years, family history negative. Always had good health. Two labors, the last at the age of thirty-five.

Dr. A. tells me that he examined this patient eight years ago for a pelvic condition which he diagnosed as uterine fibroid. He recommended operation which was refused. Menstruation always regular and profuse. Menopause five years ago at the age of forty-eight. About this time she began to notice watery discharge and about November, 1913, she consulted Dr. B. for intermittent fever, chills and severe uterine hemorrhages. On examination an extensive granular fibroid condition of the cervix uteri was found. Tissue examined was found to be malignant. A curettage and cauterization was done and she improved for several months. By February, 1915, she was weak, septic and had spent several months in bed. Horwitz-Beebe autolysin was then tried and she improved in strength. There was a diminution of the discharge and she was able to be up and around the house. More recently the autolysin seems to have lost its efficiency and at present she is emaciated and anemic and has a profuse discharge.

REFERENCES.

1. Fighting Cancer with Facts. American Society for the Control of Cancer, Feb., 1916.
2. The Prognosis in Radical Abdominal Operation for Uterine Cancer. Fred J. Taussig, Surgery, Gynecology and Obstetrics, August, 1912. pp. 147-149.
3. Education of the Public to the Early Recognition of Cancer of the Uterus. Bernois Kennedy, Jr., of Indiana State Medical Assn., June 15, 1915. pp. 278.
4. Results of Treatment of Cancer of the Uterus

by the Actual Cautery with Practical Method of its Application. James F. Percy, Journal A. M. A., Vol. LVIII, March 9, 1912. pp. 696-699.

5. Abderhalden's Test in the Diagnosis of Cancer. C. F. Ball, Journal A. M. A. Vol LXIII October 3, 1914, pp. 1169-1172.

6. The general Practitioner's Responsibility in the Early Diagnosis of Cancer. American Society for the Control of Cancer. Bulletin 6, Oct., 1915. p. 23.

7. The Treatment by Heat of Advanced Cancer of the Cervix. (Percy's Method). Donald C. Bal-four, The Journal-Lancet, Vol. XXXV, July 1, 1915.

8. Symposium on Autolysin. Silas P. Beebe and others. New York Medical Journal. October 2-9, and 16, 1915.

DISCUSSION.

Dr. D. T. Quigley, Omaha.—The use of radium in the uterus is the point I wish to bring out. I have a group of twelve inoperable cases and of these three are completely cured at the present time. In one of these cases we examined the uterus and were unable to find any trace of cancerous material. This case has gone over a year and a half and the woman is now married and apparently well. In three other cases we have absolutely no trace of the former condition. When we consider that these were hopeless, incurable and inoperable conditions, we must concede that a great deal has been accomplished. I have another group of nine cases in which we have two recoveries; in all five cases cured out of twenty-one, or about twenty-five per cent. Some European records claim a much higher percentage, but I believe twenty-five per cent is about the usual ratio of cures of inoperable cases.

We had one inoperable case, the wife of a newspaper man in Omaha, who absolutely refused to be operated upon. We treated the woman a year ago last November with radium and the case has absolutely cleared up. The cervix was so easily get-at-able with radium tubes that it would seem that if these cases were taken earlier we could do much better.

As to the question of Percy cauterizing; the Percy cauterizing has been accused of stimulating the growth. I believe that a recent paper from Johns Hopkins has shown conclusively that the burning of the uterus brings about the same serious conditions as a burn in any other portion of the body. I have seen quite a number of cases where burns reached into the rectum and bladder and never saw a case where the process was effective for more than three months. I believe that many of these cases are cured by radium.

Dr. Daisy Hansen, Lincoln.—I wish Dr. Brooks would tell us how much the chance of recovery is increased if we do the operative work first. I believe the custom is to wait a few days for the pathologist to report.

Dr. Palmer Findley, Omaha.—I have been struggling with the cancer problem for about 18 years. There is seldom a time when I do not have one or more cancer cases on my hands. I have never known

a cancer of the cervix to recover. I have only one case of possible cure and that is only a year and a half after the operation. One more is living but has a recurrence; the rest are dead.

First as to the early signs. If we wait for loss of flesh we have waited until the cancer has run fully half its course. If we wait for bleeding, 15% if not more will have passed the operable stage. If we wait for odorous discharge we have waited too long, because the odorous discharge means the breaking down of the cancerous tissue and the invasion of the parametrium. Schauta tells us that 13% of the cases which appear at his clinic were already inoperable within thirty days of the onset of symptoms.

It seems to me it would be a happy thing if women would submit voluntarily to examinations at stated periods in the cancer bearing period of life just as they go to a dentist. By so doing an unsuspected early growth will occasionally be detected. It would be a great help if we would follow the lead of Germany in letting the public know something of the early signs of cancer and the need of an immediate consultation. We are to bear in mind that it is not the quantity of the blood lost in the cancer bearing period but it is the fact that any blood at all is lost, other than in the menstrual period, that should awaken suspicion of the presence of cancer.

I have learned to look upon a watery discharge late in life as almost as significant as hemorrhage. Sometimes it is the only symptom up to death in an inoperable cancer. It seems to me that the dictum has been laid down for all time as one that must be followed; early diagnosis and early radical removal; this is the only safe rule of practice.

I believe in radium, I think it is the best palliative measure we have. Dr. Quigley has treated several of my cases, I think eight in number; six are dead, two still living, but one of these now has a recurrence. He helped all but one of them. He helped them infinitely. He made their lives comfortable for a long period of time. We can stop hemorrhage; we can stop disagreeable discharges with acetone, etc., but we can not stop pain. Radium will do all of these and it will do it with the least amount of time lost and the least amount of discomfort to the patient.

I would like to take exceptions to the suggestion that he has perhaps hinted at, that radium should be used in operable cases. I think that suggestion is pernicious. We should treat such cases on the operating table and then use radium after operation and use it cautiously. The case which Dr. Brooks reported was over-radiated. Let us look upon radium as a most useful palliative measure and let us hope that it will become curative as we become more and more familiar with it.

Dr. E. B. Brooks, closing: Of course in case a woman refuses to cooperate with us our responsibility ends, or at least is divided with her. If these patients give us a chance at all we certainly have

a great responsibility. I was prompted to present this subject because frequently patients come to us too late for help. It is a pitiful condition. We realize that our hands are tied and the possibility of improvement to say nothing of cure, is frightfully limited. The point of Dr. Hansen in regard to the fallacy of waiting after preliminary procedure is well taken. The only way in which we can avoid the loss of time awaiting the pathologist's report is by the use of frozen sections and a number of authorities will bear me out in the statement that frozen sections are not always satisfactory in making a proper diagnosis. In regard to radium as a cauterizing treatment, you will notice that I tried to be conservative and just to everybody concerned. I class it under the head of palliative measures.

Deep Roentgen Therapy.*

Albert F. Tyler, B. Sc., M. D., Omaha.

The present interest in roentgen therapy calls for a closer knowledge of the real method of action of roentgen rays upon the tissues of the human body. It is my purpose at this time to take up a discussion of roentgen therapy as applied to the deeper structures of the body and to show, if possible, the exact histological action of properly applied roentgen rays upon these structures.

General Law.

From the earliest use of the roentgen rays in therapy it has been observed that the more highly specialized the tissue the more readily was it affected by the rays. For example; the genital glands are highly sensitive while the epidermis is much less responsive to treatment. The mucous membrane, except that of the vagina, is more sensitive than the skin.

Histological Action.

Just what reaction takes place in the tissues when exposed to the roentgen rays has been a problem requiring much work and time, and in fact is not entirely worked out yet. Experiments which have been made show a double action taking place, the most important being the action upon the blood vessels furnishing nourishment to the part, and the second being a destructive action upon the cellular portion of the structure. The effect upon the blood vessels is that of an arteritis obliterans brought about by an

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intense swelling of the endothelial lining of the arteries which progresses till the lumen of the vessel becomes closed. This is a very important action, especially in vascular growths like sarcomata, for by this action the nourishment is shut off from the growth producing a starvation at the same time that the destructive action is taking place in the tumor cells.

The action upon the cells themselves causes them to lose their staining power. They do not swell up like the endothelial cells of the arteries but seem to lose their vigor; their nuclei disappear; the cells lose their staining power and they become unrecognizable under the microscope, probably being carried away by the leucocytes.

Selective Response.

It will thus be seen that each tissue responds to the action of the roentgen ray in its own specific way. Through this fact there has grown up an erroneous idea that the roentgen ray has a selective action. From a purely scientific stand-point it will be seen that selective action is impossible in a physical agent but that instead, the difference in action is due to the different responses made by the tissues themselves. As a result a much greater dose is required to destroy connective tissue or epidermis than is required to destroy a glandular organ. By making use of this difference in action shown by different tissues we are able to apply the roentgen rays to deep structures which have a lesser resistance than does the skin.

Latent Period.

When the roentgen ray is applied to the skin there is a latent period before the effects are noticeable. This period usually extends over seven to ten days, depending upon the amount and quality of the rays applied. At the expiration of this time when an intensive dose has been applied, an erythema shows which gradually increases and becomes of a darker color, then blebs appear, followed later by crusts which denote the fact that the process has passed the destructive period and has entered the period of repair. As healing gradually takes place the surface be-

comes covered by a kind of epithelium which appears smooth and pearly and which feels velvety. Under the microscope it is found that instead of the cells composing the deeper layers being arranged perpendicularly to the surface, they are arranged parallel to the surface. Not only do the superficial layers become changed but the deeper layers also take part. The hair follicles, sweat and sebaceous glands are permanently destroyed. The dermis passes through an intense congestive reaction, the connective tissue becomes replaced by embryonic connective tissue and the fibrous and elastic tissue becomes replaced by fusiform connective tissue cells with anastomosing processes. At this stage the arterioles and venules are very large but when complete healing has occurred these vessels become so small that they almost entirely disappear, leaving a pale, smooth, glossy scar lined here and there by bright red capillaries.

Deep Therapy.

Of course we have here pictured the changes taking place where an intense reaction has been produced. Since the advent of modern technic, it is possible to bring about these destructive changes in the deeper structures without producing an open wound in the skin and without leaving the peculiar scar which we have just described. To be more specific, we may say that by using a tube which will produce a bundle of rays of high penetrating power continuously, and by using a generating outfit with sufficient power to back up the tube, we can filter the rays in such a manner as to protect the skin to a remarkable degree. Knowing that the skin will bear only a certain amount of the ray even when protected, we follow the method devised by Kroenig and Gauss of dividing the skin surface into small squares giving an erythema dose through each area with the bundle of rays so focused as to pass into the mass we wish to treat. It has been worked out about how much dosage is required to produce death of carcinoma cells.

Dosage.

It has also been shown just what proportion of the rays entering the surface of the

body is effective at given depths below the skin. In work carried out by Lewis Gregory Cole of New York, it has been found that a Coolidge tube so set as to back up a parallel spark gap of eight inches, and having the anode six inches from the skin surface, will deliver one erythema dose three inches below the skin surface for every six such doses applied to the skin. This dosage is measured through filters of aluminum (3 mm. thick) and sole leather. It will readily be seen then that to produce death of cells in a tumor lying three inches below the skin surface we must divide the skin surface into a sufficient number of squares to allow six areas to be covered for each erythema dose we wish to deliver to the tumor.

Suitable for Treatment.

The question at once arises as to what forms of pathology are amenable to this type of treatment. Of the benign class may be mentioned exophthalmic goitre, keloids, angioma, Hodgkin's disease, tuberculous adenitis and fibroids of the uterus. Of the malignant growths, lympho-sarcoma, sarcoma and carcinoma may be mentioned.

Allow me to run hastily over what I deem the indications for treatment of these various conditions and the prognosis in each case.

Graves Disease.

Exophthalmic goitres are all amenable to this type of treatment unless pressure on the trachea or nerves is so great as to demand immediate relief. I feel that when this type of patient is under treatment with the roentgen ray that she should be at rest in bed having the benefit of medical regime at the same time. Of course if cardiac degeneration has taken place before the patient presents herself for treatment the roentgen ray will not benefit the heart directly but when combined with rest will give the heart an opportunity to do its best and will, at the same time, lessen the flow of thyroid secretion into the circulation. We should not expect relief from treatment of exophthalmic goitre in less than three months, although I have seen it occur much earlier. The patho-

logical change taking place under roentgen treatment is a destruction of the secreting cells of the thyroid with a concomitant increase in the connective tissue stroma. When this process has been carried far enough it is just as effectual from a physiological standpoint as though the gland had been extirpated surgically. The patient gets this effect, too, without the risk attendant upon surgical removal and with no discomfort. As the change advances the size of the gland decreases till scarcely noticeable. The prognosis is good, except where cardiac degeneration has reached an advanced stage when the ultimate outcome is usually fatal.

Keloid.

The most refractory growth known as keloid will respond nicely to proper roentgenization. The painful type will lose its sensitiveness and all will disappear leaving a smooth, flat, pliable scar.

Angiomata.

Vascular angiomas respond quickly to proper roentgenization leaving a much less noticeable scar than when treated with carbon dioxide snow.

Tuberculous Glands.

Tuberculous adenitis where suppuration has not taken place can be readily removed by proper roentgenization provided the focus of infection, such as an infected tonsil, be removed. The patient here has a choice of surgery with risk and scar or roentgenization with no scar.

Hodgkin's Disease.

Practically all cases of Hodgkin's disease will respond markedly to intensive roentgen therapy but ultimately a stage is reached where recurrence takes place which will respond to no sort of treatment.

Uterine Fibroids.

In recommending roentgen therapy for uterine fibroids one must qualify his statements by choosing cases which are suitable to this method of therapy. Those suitable are those of the intramural or subperitoneal type occurring in women about the meno-

pause. Sloughing or malignant fibroids, or those occurring in young women, should be treated surgically where possible. Roentgenization produces sterility which makes it undesirable in the younger. Other contraindications are, inflammations of the pelvic organs, severe flooding demanding immediate relief, pressure from the fibroid which must be relieved and tumors which increase in size in spite of roentgenization.

Sarcomata.

Of the malignant growths sarcomata are the most responsive to roentgen therapy. Cases which are operable should be operated, the operation being followed by roentgen treatment. The inoperable cases of the most hopeless character will often respond in a surprising way to intensive raying.

Carcinomata.

All carcinomas should be operated where possible but followed as a routine by roentgen therapy extending over the first year after operation. Where the surgeons follow their work by proper deep X-ray therapy the percentage of recurrence is reduced and the time in which recurrence does take place is lengthened. Inoperable cases should always have the help of intensive roentgen therapy. Where this has been followed and pushed to the limit some remarkable results have been reported especially by Pfahler of Philadelphia.

I have purposely confined my paper to those forms of pathology requiring the so-called "deep therapy." There is a large field of usefulness for the roentgen ray in certain skin diseases both benign and malignant which could not be touched upon here. Where the roentgenologist can work hand in hand with the members of the profession recommending surgical or medical treatment, the greatest service has been rendered in the battle against disease.

X-Ray Immunity.*

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A discussion of immunity of the animal organism following the action of X-rays natur-

ally divides itself into a consideration, first, of the reaction of various kinds of cells, both normal and abnormal, to rayings; and second, of the changes which occur in the blood and blood-making organs resulting therefrom.

The clearest conception of the action of radiations upon cell life is obtainable by studying the reaction of unicellular organisms, fertilized eggs and animals, both healthy and diseased, to radiant energy. Some of the earliest systematic observations of the effects of X-rays upon developing forms were made by Perthes. He exposed ova of *Ascaris megalocephalia* for one hour, administering from twenty to twenty-four Holzknecht units, and then examined them as "hanging-drop" preparations. The ova, which were given a dose of over twenty-four Holzknecht units did not proceed to the formation of a recognizable embryo, but remained as groups of cells abnormally arranged and irregularly sized, while non-irradiated controls showed the embryo well developed. Those which were given less than twenty Holzknecht units produced monstrous embryos, partially resembling normal forms, but presenting irregular cell masses; sometimes such a mass would occupy the position of the tail of the embryo—the head being normal—and vice versa.

The important thing to note in reference to the above is that the cells were not killed outright but continued to undergo division to a greater or less degree with the production of atypical forms of low vitality.

The action of X-rays upon the development of the chick was first observed by Gilman and Baetjer. For thirty-six hours following raying with approximately five Holzknecht units the experimental embryos showed an accelerated development over the controls; after that period they were retarded.

A specimen examined on the fourth day showed deformity of the head and inhibited development of the eyes. In older specimens the limbs were distorted, projecting from the body in various eccentric ways, and in those cases where feathers had commenced to grow, their distribution was patchy.

Bordier and Galimard later did a further

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series of experiments upon chick embryos. The developing eggs were subjected to daily doses of fifteen Holzknecht units for twenty days while undergoing simultaneous incubation at 40° C. when no trace of an embryo could be found. In specimens where development had been allowed to proceed normally to a certain stage and which were then exposed to X-rays, growth was apparently arrested from the time when the rays were first applied.

The effects of experimental raying of animals were deleterious in all recorded cases. Irradiation of a particular part of newly born animals led to a diminution of growth of that part. In instances where the head only was rayed, the whole body suffered retardation of growth. This fact is of particular interest as corroborating Crile's theory that the internal secretions of three organs of the body in particular, viz: the brain, thyroid and liver are responsible not only for uniform development but for maintaining the working efficiency of the tissues in toto at a constant normal equilibrium. It also would seem that the brain is the most important of the organs mentioned as profound somatic changes followed its irradiation in contradistinction to more localized tissue alterations in cases where other parts of the body were subjected to raying.

The following experiment also emphasizes the far reaching possibilities of irradiation of the central nervous system, and suggests the probability of nutritional and toxic changes through the avenues of the general circulation. Cohn rayed the heads of pregnant rabbits, the rest of the body being enclosed in a lead lined box. The total duration of the various exposures was three hours. The pregnancy continued to full term and for the first fourteen days after birth the offspring resembled young controls but afterwards a very marked inhibition of growth occurred. Seven weeks after birth the experimental animals had attained only about one-third the size of the controls. In addition to this puny development, blepharitis and keratitis were noticeable.

An analysis of the literature in reference to experimental X-raying of inoculated ani-

mals and a study of human lesions during treatment are interesting and instructive. Some of the most extensive researches into the nature of the changes produced in malignant cells when subjected to X-rays were made by Clunet and Raulot-LaPointe. Their procedure has been to treat malignant conditions with X-rays and at various stages of the treatment to obtain portions of the growth for histological study. In nineteen cases of squamous cell carcinoma in man they found that before the ultimate disappearance of the growth, the cells pass through at least five successive phases, as follows:

- (1) The latent phase which varies from six to fifteen days shows no cytological change.

- (2) The development of monstrous characters which is marked by enlargement of all parts of the cells, by an increased number of atypical mitoses, by the appearance of enlarged nuclei, markedly chromophilic and by the development within the cells of forms having a pseudo-parasitic character.

- (3) Keratinization which may be either disseminated, total or atypical. In this stage the protoplasm becomes granular, the nucleus undergoes changes and finally the nucleolus suffers transformation.

- (4) Disintegration and phagocytosis.

- (5) Formation of the connective tissue scar.

Cortamin has exposed tumours in mice to X-rays under various experimental conditions and records some interesting results. Malignant neoplasms as large as the mice bearing them were made to disappear after they had received an exposure of one hour. However, tumours in a stationary condition were not affected in any way by such treatment. Cortamin draws the following conclusions:

- (1) The action of X-rays is the greater the younger and more actively growing the tumour.

- (2) The disappearance of a large tumour causes the death of the animal probably by intoxication.

Regarding the action of hard and soft X-rays upon tumours. Wedd and Russ have made observations on mouse carcinoma by

submitting the removed neoplasm to measured doses of X-rays. The time required for a lethal effect, that is to prevent its subsequent growth when inoculated into other mice, was found to be shorter when the tumour cells were exposed to "soft" X-rays than when only hard rays were used. They conclude, however, that this does not mean that soft X-rays have a specific action upon carcinoma cells, but that inasmuch as filtering and using hard rays reduce their ionizing effect to about one-third, the exposure with filtered rays has to be increased about three times.

It is not within the province of this paper to discuss fully the relative merits of the use of hard and soft X-rays, and the fractional method of dosage in contradistinction to the massive. It might be well, however, to summarize that phase of the question by stating that to induce a cellular reaction to the rays, it is essential to use relatively hard rays for all lesions other than the most superficial. Generally, too, the massive dose in the treatment of all conditions which are fundamentally of a cellular nature in contradistinction to a toxic, is indicated by the reason that an immunity to the ray frequently follows the fractional method which defeats the purpose of the therapy and may even prove a menace by inducing an undesirable stimulation.

The action of X-rays on the body cells as detailed above can likewise be ascertained indirectly by a study of the blood. That the rays can induce changes in the blood primarily will be discussed presently. For the discussion of this phase of the subject we are indebted to Dr. M. G. Wohl.

Heinecke has shown that X-rays have a detrimental effect upon the spleen and bone marrow. The destruction begins very soon after exposure. On account of this the leucocytes, especially the lymphocytic type, are greatly reduced in number; myelocytes and eosinophiles make their appearance according to Aubertin and Beaujard which point to over activity of the bone marrow. While a number of men have investigated the action of the X-ray on the blood, yet the precise nature of its effect is unknown. From our work

which is still in progress, it would seem that exposure to the X-ray is accompanied by an initial increase in leucocytes which decrease upon subsequent exposures. The lymphocytes show a greater tendency to diminish than the polymorphonuclear leucocytes. There is no doubt that diminution of leucocytes is due to destruction, occurring in the blood-making organs. This is of practical importance as it indicates that the spleen should be protected as much as possible during the application of the X-ray.

Lazarus in 1914 warned radiologists to protect the spleen and lymphatic apparatus indicating that the red blood cells and serum carry radio-active energy. This is in accordance with Eden's observation that red blood cells and serum after exposure to the Roentgen ray have a distinct power of reducing the silver on photographic plates. If blood serum and the red corpuscles can store up and carry radio-active energy, the remote injury to the lymphatic apparatus can be explained.

The red blood corpuscles are likewise diminished by the action of the X-ray. Since the spleen and bone marrow are the source of the formation of immune bodies, it would seem quite logical to suppose that the X-ray would have a direct influence upon them. We have exposed guinea pigs to the action of X-rays and by testing the blood from time to time have found that the complement would vary depending upon the dosage employed. Small doses produced a moderate increase of complement, while large doses caused a depression.

In regard to anti-bodies we found that rabbits inoculated with washed sheep cells and subjected to the action of X-rays showed a depression in the formation of hemolysins as compared with rabbits that were inoculated with the same amount of sheep cells but were not subjected to X-raying. Amboceptor, complement and sheep cells subjected to the action of the X-ray in vitro for as long as 45 minutes have shown no change in their biological reactions. These findings are in accord with the observations of Hectoen, Fiorine and Ziorini. Benjamin and Sluka have likewise noted that the formation of

precipitins and agglutiniis was interfered with. On the other hand the production of opsonins is not markedly affected by the rays. Crane has pointed out that exposure to the ray leads to an increase in the opsonic index for tubercle bacilli, advocating its use in lupus and allied conditions. The benefit derived by X-ray therapy in such cases is in our estimation due to the increase of the complement (thermolabile opsonin) as the reaction of the body to radio-active energy is subject to the biological law that irritants in small doses act as stimulants and when employed in larger dosage behave as powerful depressants.

BIBLIOGRAPHY.

- Colwell and Russ, Radium, X-rays and the Living Cell.
 Crile, The Origin and Nature of Emotions.
 Knox, Radiography, X-ray Therapeutics and Radium Therapy.
 Heinecke, Deut. Zeitschft f. Chir. 1905, L XXVII, p. 196.
 Hectoan, Journal Infectious Diseases, 1915. Volume 17, p. 413.
 Simones and Jones, Journal Medical Research, Nov. 1915.
 Crane, American Journal of Medical Science, March, 1908.
 Gaylord, Journal Am. Med. Assn., March 20, 1915. P. 971.

DISCUSSION.

Dr. W. L. Ross, Omaha.—Confirmatory of the conclusions of this paper I want to cite Cluse's experience in raying a cat that had previously given birth to a healthy litter of kittens. Following another impregnation about half or two-thirds term, he had this cat under the X-ray administering a certain dose. The result was that the kittens in embryo were killed and the cat gave birth to dead kittens. A subsequent impregnation took place with the birth of perfectly healthy kittens. I want to emphasize the fact that the cat gave birth to healthy kittens to show that no deleterious effects upon the organs of the cat continued. So far as raying blood making organs I have had occasion to treat a number of joints where multiple exposures were given without deleterious effects. At the present time I am raying a man of 23 years who has malarial parasites in his blood and his inability to tolerate quinine has been such that he has not been able to overcome this infection. Red cell count of 3,000,000 has been increased to 4,197,000 while the differential count was not changed.

Concerning cancer of the breast, one or two of

my cases were examined by a surgeon. He did not hesitate to tell the patients that they were fooling away time; treading on dangerous ground with only X-ray treatment. My experience with those were that they were relieved of the growth and without deleterious constitutional effects. The X-ray has been put to an exceedingly severe trial and most of the cancerous conditions treated up until recently have been such as the surgeon felt were inoperable.

Practical X-Ray Pointers.*

W. H. Mick, M. D., Omaha.

X-ray equipment for doing practical work consists of an electric generator generating a suitable current: an X-ray tube supplying suitable rays. The operator or technician must harmonize the energy and the tube and know the end result either from experience or training, while the radiographer must give the proper interpretation of the roentgen shadow reading.

Source of supply of an electrical current to do X-ray work must be figured on the same basis you would figure any other line of electrical output, namely direction of current, voltage or pressure, amperage or volume of electricity. The amount of work done by an electrical machine depends upon the voltage or force times the amperage or volume working in the proper direction. Machines have made marked advancement in the ease with which they are handled, the exact nature of behaving, in other words the dependability and in not having any untoward or objectionable energies. From the early days of the static machine the proper voltage could be figured and also the output. The results are the same regardless of the make or type of machine provided that the wattage is the same, produced by constant pressure and volume. The early machine was not dependable because of its not being in a working state at the time of most urgent need; it often took an hour or more to dry an old static machine and it was subject to change and atmospheric conditions. The induction coil when run under the most favorable conditions on a direct current, carried with it a certain amount of interruptor trouble and at best generated a high voltage inverse current when you consider that there was a secondary inductance and output

*Read before the Nebraska State Medical Association, Omaha, May, 1916.

of electrical energy at make, one-twelfth of the strength of that generated at the brake.

Interrupterless machines are of three types, namely the high frequency type, the type which rectifies a high voltage current and the Blitz or lightning type. The last type is not on the market in America. It produces one flash of high voltage current which lasts only a fraction of a second. The first and second types are in common use. The second, generates an ideal current for X-ray work while the high frequency type generates a current in the wrong direction equivalent to the current generated in the right direction. The disadvantage should be noticed at a glance in having a high voltage current traveling in a wrong direction, which must necessarily be taken care of by some mechanical means. A current which tends to pass through an X-ray tube the wrong direction is detrimental to the tube when continued to any great extent. It causes the formation of deposits in the tube, it renders the tube hard; it has more penetration but less definition and makes it almost impossible to have a stable vacuum even though the utmost care is exercised.

In selecting an X-ray machine the induction coil or the transformer capable of generating the proper output of pressure and volume is all that requires our attention. An open core works very well in an interrupter type machine but on an interrupterless the closed core is much more economical in tube wear.

Second in importance is the control unit or switchboard which may be constructed fairly simply. The switchboard regulates the output of both pressure and volume allowing the motor which runs your rectifying disc to run in synchronism with the current running through the primary.

The third unit is the rectifying or the producing of a high voltage direct current. This is accomplished by a motor which runs in synchronism. In accordance with the above three requirements it has been possible to construct a roentgen apparatus, which is ideal, in three parcels or units, the transformer weighing 143 lbs., the cynconus motor or rectifier 130 lbs., and the control

or reostat weighing 80 lbs. All of these are incased, having handles so that two men can easily carry the same. For convenience we have since added to this a cable which unrolls and carries the current from the meter to the switchboard which is placed at the bed side, also a tube box to make the carrying of a tube easier. We have also constructed a substantial tube stand which carries with it part of a table which has a plate tunnel. This table permits any tube tilt and carries with it a compression cylinder. In this way it has been possible for us to use the above outfit in our X-ray laboratory, at the bed side, and in any building where an ordinary light is obtainable. It is our hope to add to this a dynamo which will generate the proper current when attached to an automobile engine.

While there has been a remarkable advancement toward the ideal as far as step-up transformers or X-ray machines are concerned, the same can be said of X-ray tube advancement. X-rays are generated in the tube and not in the machine. Vacuum tubes, (which are only partly so) generate X-rays by having a certain volume of electricity throwing negative electrified bodies against a dense metallic anode from the cathode of the tube. The more nearly the tube approaches a perfect vacuum determines the hardness of a tube and consequently the more pressure or voltage is required to operate such a tube. The higher the vacuum or harder the tube the deeper the X-ray penetrates and the shorter its wave length.

A tube which is too soft or has in it a large amount of gas may not give sufficient penetration while a tube which is too hard may not give sufficient definition. The tube of choice is one just hard enough to give you the desired result. The longer the ordinary type tube is used the more nearly a perfect vacuum and the harder it consequently gets. If you have a tube which is too soft you can harden it by reversing the current and running it in the wrong direction. This is not the easiest method of hardening such a tube; it is much better to season it by using it on lighter parts or using it for a long time as a therapeutic tube. When a tube gets too

hard the ordinary regulating device when carefully handled gives you a fair result. Tubes which have an osmose lowering device do not require a lowering of the vacuum as often as do the other types.

A new operator should be content to use a system in developing his skill as a technician. He should make radiographs of hands, feet and limbs, before attempting a shoulder. When he is able to make a radiograph of the shoulder of a normal subject he should learn to make a radiograph of a normal chest before attempting one of a hip, the head, the abdomen, etc. These should all be made of a normal healthy individual before a pathological diagnosis is attempted. The dark room technic is a subject that requires special attention during the time the technician is studying anatomical radiographs.

Radiographs of pathological subjects are made for their variability in shadows not for their beauty. Many beautiful plates are not necessarily the most accurate diagnostic plates. The position of the body and the plate and tube figure materially.

A good technician is not necessarily a good diagnostician, neither is a good therapist necessarily a radiographer. Much valuable assistance in technical lines as to how to get beautiful X-ray shadows can be had from the mechanic who installs roentgen machines. Unfortunately most of these men are better salesmen than diagnosticians or therapists, to say nothing about their being unfamiliar with physiology and often knowing little or no anatomy.

It has always been my view that the technician as well as the radiographer should view roentgen shadows of the living subjects on the screen. It will often give one a good idea regarding a practical position for showing a man a certain anatomical structure as well as making more accurate the study of roentgen interpretation from plates. A roentgen diagnostician should study the function of organs on the screen as well as shadows on a plate and note differences from the normal.

We notice the variance in conclusions and results obtained in the hands of different men using the same equipment either in

diagnosis or radio-therapeutics. If results are expected a prospective radiographer will save much time, trouble and discouragement by studying roentgen shadow reading in a laboratory where any number of records can be had for the sake of comparison. When you see the different results that technicians get making radiographic plates is there any wonder that some X-ray operators fail in their therapeutic work. X-rays are X-rays but as you vary the vacuum of your tube, pressure and volume of your current so also do you vary your results, time in each case being a factor as well.

The Coolidge tube has made it possible for the technician to change the penetration very easily. For the busy laboratory it has made it possible for the operator to obtain any required result as far as the tube is concerned, without the loss in time or changing of tubes. There is no way of telling however how much penetration you have unless the amount of spark a tube will back up is measured by the terminals and by watching the meter to see what volume of current you are drawing. This tube shows an apple green along the stem of the anode only, which is only noticed by most careful observation.

If you have an X-ray machine add a milliammeter, see that the machine generates a current going in the proper direction which is done on the old type of tube by using just enough current to light up the tube and obtaining an apple green hemisphere between the anode and cathode. If you have a distinct hemisphere with circular rings back of the anode you know that you are getting some inverse current. If no apple green hemisphere appears and rings only appear, your current is running in a reverse direction. The operator with a milliammeter will read the volume of current passing through the tube and when the needle is deflected in the proper direction he knows that his current is passing in the right direction. A very simple method of determining direction is to have a point on one side of your machine, a flat disc on the other. If the point is made positive and just enough current is used to spark across the gap, the current will hit the negative disc on its flat sur-

face. When the disc is made positive and the point negative the current will not jump as great a spark gap distance. If the spark gap is narrowed and the disc is kept positive the current will leave the edge of the disc in crossing the gap.

In conclusion I shall endeavor to demonstrate some of the most important problems the technician meets in his early experience. I will invite questions at any time and will endeavor to make myself understood. There is no need of getting discouraged if you are not getting results. You are probably attempting to advance more rapidly than you should or you are losing much valuable time in studying technical things which have been worked out during the time roentgen apparatus and tubes have been perfected. To get the greatest amount of assistance make a careful observation of the behavior of the machine, meter, and tube together with your results, this will save speculation in answering your inquiry.

Cranial Fractures from the Standpoint of the Neurologist.*

G. Alexander Young, M. D., Omaha.

The problem of the cranial fracture for the neurologist has two general aspects; first, the extent and nature of the injury to the endocranial contents, the immediate complications likely to occur, and the treatment that will best preserve the functional integrity of the nervous system; and second, the consideration of the later consequences of the cranial and cerebral trauma. The position of the neurologist should be that of active cooperation with the surgeon in the early treatment of the case, for the rational surgical and medical care of the patient immediately after the accident and during convalescence is his chief safeguard against the later intractable complications of severe brain injury. For this reason, I shall dwell in my remarks, upon the first general aspect mentioned.

Clinically, injuries to the nervous system consequent upon cranial fracture tend to fall into two main classes, just as do the fractures themselves, to-wit: local and diffuse.

They do so by reason of the mechanical conditions brought into play by the accident.

The local injury can be illustrated by a blow with a hammer over the Rolandic area which produces a circumscribed indented fracture and a paralysis by reason of a lesion of the underlying cortex. The fracture and the nerve lesion are both limited in extent.

The case is different with an individual who is thrown to the pavement, striking his head violently in falling. Here, according to the principle laid down by Von Wahl, the fracture follows as soon as the distortion of the skull as a whole exceeds the limits of its elasticity and is of a bursting type. The fracture then may be at the point of impact, at a point opposite, or at the location of the equator of these two points. The lines of the fracture tend to be wide-spread and as a rule, course meridionally to the base. For the neurologist, the important fact is that the skull and cerebral tissues as a whole have been subjected to a violent distortion and displacement, and that diffuse lesions are apt to have occurred in various parts of the brain. For instance, a man may have a fracture of this type in the right temporal region and we find a collateral hemiplegia of the right side due to a distant lesion of the left crus instead of a left sided hemiplegia as we might naturally expect from the site of the fracture. It is this fact of diffuse and manifold lesions consisting of various degrees of contusion and parenchymatous hemorrhage that makes the study to this form especially valuable. Here the diagnosis of concussion, contusion and compression, and the question as to operation are more difficult of decision. Also it is this type of injury doubtless that gives us most of the unhappy late results.

Apart from the injury sustained by brain or cranial nerves at the moment of fracture, a third element of danger occurs in the possibility of the rupture of some blood vessel or sinus and of progressive hemorrhage taking place. Hemorrhage is likely to occur from the middle meningeal artery, from the branches of the cerebral arteries or veins, or from any of the sinuses.

The early pathology of the cerebral in-

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jury consequent upon fracture is of two-fold nature.

First, we may have direct injury to the brain substance either in the form of organic destruction of tissue from laceration or contusion, with corresponding paralytic symptoms, or functional inhibition due to mechanical shock or depressed bone. The disturbance of function varies necessarily according to the location of the injured parts and the extent and severity of the lesions. There seems to be no reason to doubt that widespread softening may take place as a result of the injury without attendant loss of consciousness, or that death may occur in coma in a few hours without any demonstrable lesion being found at autopsy.

Second, interference with function and danger to life may depend upon increase in the intra-cranial pressure following the accident. This arises from three main sources; to-wit, traumatic oedema, excess of cerebral spinal fluid, and the progressive hemorrhages mentioned above.

The parenchymatous oedema or acute brain swelling following diffuse brain trauma is an almost constant phenomenon and provides the main argument for the decompressive operation in brain injury advocated by Cushing. It is argued, and quite rightly, that the cerebral stasis caused by the swelling is not alone the cause of death but that it promotes softening of the brain tissues, retards recovery and serves to render the patient more liable to the various traumatic neuroses, psychoses, and other sequelae so frequent after head injuries. The question of operation in the individual case, while theoretically advisable, depends for its answer upon the consideration of all factors, such as the extent of injury, amount of shock, and time elapsed since the accident.

This parenchymatous swelling may occur in a chronic form after head injuries. It has been described as pseudo-tumor by Nonne or as brain swelling by Reichardt. It runs a progressive course with headache, vomiting, mental torpor, optic neuritis and often focal signs, and may end in death or spontaneous recovery. It occurs not infrequently after moderate injuries. Here, a decompressive

operation should be followed by relief of the symptoms.

The case of an epileptic I autopsied fourteen years ago illustrates traumatic excess of cerebral spinal fluid and brought to my attention the use of lumbar puncture in cranial fractures. The patient had fallen in a fit on the frozen ground. He had gotten up apparently none the worse for the fall. Two or three days later he had become dull, the dullness deepened to coma and he died on the tenth day. The autopsy revealed a simple linear fracture of the occipital bone, contusions of the posterior poles of both hemispheres of the cerebellum and a great excess of cerebral spinal fluid. There were no other softenings present and death undoubtedly was due to pressure of the excess fluid. I believe that lumbar puncture used repeatedly in this case as soon as the mental dullness set in would have prevented death.

This increase in the amount of cerebral spinal fluid may take the form of a serous meningitis and produce a picture characteristic of an acute hydrocephalus.

It is interesting to note that Weitz has found in patients suffering from traumatic neuroses following head injury an increase of pressure of from one to two hundred millimeters of water above normal. In the case of the man suffering from headache, vertigo and depression several months after the liberal use of a policeman's club on his head, I found a spinal pressure of two hundred fifty millimeters instead of the normal one hundred and ten. No evidences of organic lesion or fracture were present.

Another complication (in localized collections of cerebral spinal fluid) is found, in the meshes of the pia-arachnoid, which may become so pronounced as to cause general pressure symptoms and localizing signs.

A case in point seen with Dr. Van Buren of Omaha was that of a man of fifty who was injured in a train wreck. He was unconscious three hours, and afterwards presented symptoms of pain, hyperaesthesia, weakness of the left arm, and a general clouding of consciousness. A number of these symptoms seemed to be of a hysterical nature. This picture several weeks later passed into an active delirium with great motor unrest. A skiagram of the head showed no fracture but a definite shadow in the upper parietal area of the right side. Operation revealed softened bone in this region with the pia-arachnoid underneath greatly distended with fluid. This was allowed to escape and the wound was closed.

The patient was practically rational upon recovery from the anaesthetic. He continued

well for several weeks, then lapsed into a somnolent, apparently aphasic condition, which slowly improved during the course of five or six months to complete recovery. It is an open question as to whether or not the mental and physical torpor were due to a chronic oedema in the sense of Nonne and Reichardt.

Together with the depressed, and the compound cranial fractures of the vault, progressive or definitely localized hemorrhage offers the one certain indication for operative treatment. According to Hewett, progressive symptoms of compression in cranial injury, due to intracranial hemorrhage are dependent upon rupture of the middle meningeal artery in ninety percent of cases. The classical symptoms of this condition are well known. The presence of a free interval of consciousness after the injury, then progressive coma, slow pulse, and signs of motor irritation and paralysis of one side are diagnostic and render non-operative treatment criminally negligent.

An allied condition is that known as late traumatic apoplexy where, perhaps several weeks or months after a more or less severe head injury, the patient develops paralysis and coma and dies. The condition is a hemorrhage arising secondarily from a contusion, through softening.

A man of fifty was thrown from the steps of a moving street car, striking his head on the brick pavement. He got up and except for some headache and dizziness lasting several days felt well and returned to work. A month after the accident he developed a left hemiplegia with coma and died in a few days. When I first saw the man he was in deep coma. A diagnosis of secondary hemorrhage near the basal ganglia was made and the autopsy showed a contusion of the right crus with a hemorrhagic area extending up into the optic thalamus.

This case shows the necessity of prolonged rest after brain injury. Such a condition can occur near the cortex and I see no reason why in such a case it should not be treated surgically.

In estimating the condition of the patient and the treatment to be adopted the following points should be inquired into:

The state of consciousness is probably the most important and it is to be remembered

that the changes in consciousness from time to time are more important as indications for treatment than the state at any one time. The importance of the free interval and later progressive deepening of coma cannot be too strongly emphasized. As a general rule the more profound and prolonged the coma the more severe the injury. The continuance of coma should always suggest a decompressive operation.

The pulse, respiration and blood pressure are interrelated. Death in cerebral concussion and compression is due to failure of the respiratory center. Immediately after the injury the pulse is rapid, the respiration is irregular and the blood pressure low. If the lesions are not too severe, reaction sets in, the pulse slows, the blood pressure goes up and the respiration deepens. Progressive increase of the blood pressure in deep coma represents the attempt of the vaso-motor center to compensate for the cerebral anaemia due to increase of intracranial pressure from oedema or hemorrhage. Cushing quotes a case of extra dural meningeal hemorrhage with a blood pressure of three hundred. Continued rapid pulse, shallow respiration and low blood pressure are of bad prognostic omen. They are particularly so when they follow a period of slow pulse and high pressure. When the pulse is weak and rapid, and the blood pressure low, it is useless to operate unless the history, the ophthalmoscopic findings and the general symptoms indicate hemorrhage.

Ophthalmoscopic findings are helpful in determining the presence and location of pressure. Swollen retinal veins, clouding of the disc, or presence of neuritis, more marked on one side than the other are evidence of a homolateral pressure, possibly hemorrhage. This sign is especially valuable when the depth of the coma makes recognition of a hemiplegia difficult.

Lumbar puncture gives evidence of laceration of the soft meninges and subdural hemorrhage by the presence of a bloody fluid and increased pressure. A clear fluid with accompanying symptoms of progressive pressure indicates extradural hemorrhage.

A reflex of an importance equal to the

Babinski in indicating lesion of the pyramidal tract is the crossed adductor reflex of Marie. It consists of a sharp contraction of the adductors of the paralyzed side upon tapping the patellar tendon of the healthy side.

The differential diagnosis between the so-called concussion and brain compression, lies in the free interval of consciousness followed by steadily advancing coma and slow pulse found in compression. When there is unconsciousness from the beginning the diagnosis may be difficult and depends upon the proper interpretation of all the symptoms present.

The sequelae of severe brain injuries such as epilepsy, chronic headaches, vertigo, traumatic neuroses and psychoses with the exception of the acute traumatic deliria and hystero-neuroses have a very unfavorable prognostic outlook. Their treatment lies mainly in efficient early prophylactic care of the injury. This point cannot be too strongly emphasized.

Injuries to the cortex are less liable to leave permanent defects of function than lesions of the association and projection paths of the underlying white matter. Some of the cases of brain injury described in the medical reports from the present war show remarkable recoveries of function, with wide spread destruction of the cortex. This is in line with the clinical fact demonstrated by Horsley that while brain tissue cannot regenerate, the brain itself has active properties of vicarious or substitutive function.

Furthermore, we must remember that the restitution of nerve tissue to normal is a slow process. This is true both nutritionally and anatomically. An injured brain for instance is sensitive to alcohol for months or years. The bearing of this fact upon the necessity of rest is obvious.

The treatment of cerebral injuries associated with cranial fracture consists of first aid, operative measures for the prevention of sepsis and relief of pressure, and finally prolonged rest.

First aid consists in giving stimulation to promote reaction. Caffeine is preferable.

Icebags, heat to the extremities, sedatives, small doses of opium or pantopon, bromides or adalin, rectal feeding, careful nursing and absolute quiet all have their place.

Operative treatment, should be carried out always in certain types of cases, as hemorrhage or bone depression. In continued coma with a likelihood of oedema due to diffuse injury I am personally inclined to favor decompression where the pulse is strong and the vaso-motor system active. Once oedema sets in, a vicious circle is started that often cannot be broken unless bone is removed. It is safe to say that the error has lain on the side of too few decompressions than too many. Cases of very severe injury with feeble pulse and low blood pressure should not be operated unless evidence of hemorrhage exists.

Lumbar puncture should not be forgotten and can be employed in every case showing coma. It has both diagnostic and therapeutic merit. From ten to thirty c. c. can be withdrawn. The fluid should be withdrawn slowly and the procedure may be repeated from day to day.

The importance of rest in these cases is paramount. To effect repair in the nervous system, stimuli must be restricted. Many traumatic psychoses and even suicides result from too early resumption of work. The same is true of the neuroses. A neurosis in my experience, results when the individual suffers from a sense of personal inadequacy no matter whether that sense of inadequacy is physically or psychologically conditioned. To put a man who has recently suffered from brain trauma to the strain of active life is to invite such vicious reactions as epilepsy, vasomotor headaches, and persistent neuroses to say nothing of the physical reactions of late apoplexy and cerebral arteriosclerosis. It is also to be recalled that a leutic individual is likely to develop a cerebral lues after injury which tendency is increased by too early resumption of work.

A safe rule is a month or six weeks in bed and from three to six months freedom from work. The older the patient the longer should be the rest.

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Some Phases of Metabolism.

To every internist the problems of metabolism—with their important bearing upon disease—are of the greatest interest. Probably no phase of medicine today is so fraught with possibilities as that which deals with biochemical problems. Medical literature is filled with the results of biochemical investigations and a good third of all chemical literature is biochemical. Salt concentration, the behavior of colloids, H-ion concentration in the blood; the problems of diabetes, of beri-beri, of pellagra, and a hundred others depend upon biochemistry for solution. We are beginning to obtain some knowledge of protein behavior and within a very few years much light has been thrown upon the relative importance of the amino acid content of foods.

It is well understood that the various body activities require different amounts, and proportions of amino acids. All proteids do not produce on splitting, all amino acids. Hence, an adult may be sustained in nitrogen equilibrium by means of a proteid which does not yield a certain amino acid whereas growing individual would not gain weight. For example, Mendel and Osborne have shown by means of experiments upon albino rats that some proteids, as the proteid of milk, edestin of hemp seed, albumin of white of egg, are

capable of satisfying the needs of the body at all stages of development. Analysis of the aforementioned proteins shows the presence of all the amino acids. But, when gliadin of wheat is fed as the sole protein, adult animals are sustained but growing animals cease to increase in weight. If, however, the amino acid lysin be added to the gliadin diet, growth is resumed. Gliadin is found to be practically devoid of lysin which particular amino acid is essential to the formation of the proteid complex. The most important proteid of corn is zein. This particular proteid does not contain lysin, tryptophan or glycol. Zein is, therefore, wholly inadequate to supply the proteid needs of either adult or growing individuals. If lysin be added to zein, adults will be maintained without growth; if lysin and tryptophane be added growth and maintenance will be normal. We have long noted the marked inability of gelatin to maintain nitrogen metabolism. Gelatin is lacking wholly in tyrosin and tryptophane. Add tyrosine and tryptophane to gelatine and a normal proteid maintenance is established. It is clear that some deductions may be made from the foregoing facts. If zein does not contribute to growth, if it will not maintain growth, it follows that the diet of children largely made up of corn products is decidedly faulty. The feeding of very large amounts of food derived from corn will not overcome this lack of tryptophane and lysin. In most instances excess feeding of improperly balanced proteid brings with it a train of putrefactive splittings which are in themselves toxic. This is evidenced by the appearance in excess in urine and feces of indol and skatol. It is known also that from the normal amino acids, arginin, lysin, tyrosin and histidin, putrefactive process give rise to putrescin, cadaverin, tyramin and histamin respectively. These are probably end products of bacterial action upon amino acids. Indol and skatol are putrefactive products of tryptophane. Foods low in tryptophane will reduce the possibility of this form of putrefaction; viz. gelatin from which no indol or skatol can be derived.

Clinical applications of these newly established facts as yet are few. Tyrosine under

putrefaction yields tryamine and in man will cause a marked rise in blood pressure. In arterial hypertension any food which yields tyrosine under probable conditions of putrefaction would be contraindicated. Casein yields 7 per cent of tyrosine hence milk is not an ideal food in this condition. Cereals and fruits yield but little tyrosine. Under similar conditions histamin is formed from histadin. This particular derivative of histadin has been studied pharmacologically. By injecting histamin, violent bronchial spasms are induced. By the elimination of histadin yielding proteids from the diet, the condition of bronchial asthma, if existing from this cause will be greatly relieved. The yield of histadin is 2.5 per cent from casein, 10 per cent from haemoglobin, 2.9 per cent from legumin, etc. Low yields of histadin are found in the proteins of rye, corn and gelatin.

The editor of the Texas State Medical Journal writes a delightful little paragraph commenting upon the appearance of the Nebraska State Medical Journal. Our Texas friend senses the situation exactly. The editor is "blanked if he does and blanked if he doesn't." No small part of a medical editor's job lies in grinding a wide assortment of articles into a semblance of unity and scientific worth. The best wishes of the Nebraska State Medical Journal to the big brother from Texas.

NEBRASKA ESTABLISHES A STATE MEDICAL JOURNAL.

The first issue of the Nebraska State Medical Journal appeared July 15th, 1916. Nebraska is the 34th state to establish an official organ of publication. These Journals are never infants. Like the dragon's teeth the moment the idea falls upon state soil it springs up an armed man. It begins at once its fight on nostrums and quacks, makes a thrust at low grade medical education, raises its shield for medical defense and its voice to secure better medical laws, arouses greater professional activity and becomes a champion of public health. Nebraska has a population of a little over a million with about 2,000 doctors, of whom about half are in county societies.

The editor and business manager of the new Journal are named Cutter and Aikin. It sounds propitious. They now can figure on how to print a thou-

sand dollars' worth of matter for five hundred a month. Dr. Cutter can carve a wandering, worthless paper into a concise, scientific article and secure the lifelong enmity of the author. He can print some scholarly editorials and some one will write for less of that "high-brow" stuff and more practical articles on how to treat biliousness, congestion and malaria. He can now refuse to publish full page photographs of aspirants for office and get on their official "cat-gut" list. Oh, the medical editor's life is usually a short but a merry one!

The Nebraska Journal is a fine piece of printing, its advertising is clean and conforms to A. M. A. standards; it contains good English and breathes a helpful, constructive spirit. Brother we wish you long life and prosperity.—Texas State Medical Journal, Sept., 1916.

Would You Employ You If You Were Your Employer?

Would you? I wonder! Think a moment. When the street car conductor does not see your signal in time to stop the car for you, do you condemn him for inattention and incompetence? When the postman gives a letter you've been waiting for anxiously to the wrong person, do you "fume" at and about him? When the soda clerk gives you strawberry when you asked for chocolate, do you threaten to "report" him? Do you voice your indignation when a waiter brings you soup instead of a sandwich?

How do you suppose your employer feels when you spell reversible with an "a" instead of an "i"? Or when you telephone a man to meet him on Tuesday instead of Wednesday? Or when you make a costly error in figuring, or displease a customer and lose her trade?

Self-criticism is worth more to you than all the fault-finding you can do with regard to the service of others. The only benefit your criticism of others can be to you is to put you on your guard against faults in your own work.

You have perhaps more than once said, "That person ought to be fired." Possibly your employer has thought the same thing with regard to you several times.

Would you employ you if you were your employer? —New York Herald.

The above from the New York Herald deserves more than passing notice. It is much easier and much more comfortable to blame the other fellow for one's own short comings and it is usually expected that one will blame the druggist, the nurse, one's assistant, the laboratory man, etc. Probably the most hopeful sign of better things is that the good physician rarely, if ever, feels competent to undertake self-medication.

How often are we tempted to pass criticism upon the professional skill or attainments of

a colleague when we know nothing of the important features of the case in point and when we fully realize that failure has attended our efforts in a similar case. After all, the main characteristic of humanity is self-preservation which may become pure selfishness in the abstract.

Nebraska physicians are a splendid, big-hearted, generous group of men—with all the failings of men—yet with a type of training that makes for the highest character development. To do one's best for humanity is second nature—a part of our creed—yet do we not overlook opportunities for inter-professional courtesies? Medical Nebraska has so much to look forward to in the advancement of sound scientific medicine that a united profession is needed for ideal accomplishment. The Nebraska State Medical Association should have several hundred more members, with every county society alive to its opportunities.

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October and November are good months for holding the annual meetings of County Societies, electing officers and arranging for payment of 1917 dues.

Dr. R. E. Vander Slice recently of Kearney, Buffalo county, Neb., has moved to Mason, Ingham county, Michigan.

Dr. J. C. Logan recently of Herman, Washington county, Neb., has removed to Bridgeport, Morrill county, Neb.

The Dr. M. J. Ford Hospital, Omaha, is nearing completion.

The Methodist Hospital, Omaha, is completing and equipping a new surgical amphitheatre.

The Omaha daily papers note the prolonged absence of one Doctor (?) Little, from his place of business as "proprietor" of "The

United Doctors" offices in Omaha. His patient landlord and faithful office girl are longing for rent and salary many weeks past due.

The Trustees of the Nebraska Methodist Hospital, Omaha, have announced that they will begin the construction of a new wing within a short time. The proposed new wing is to cost approximately \$70,000.

At the home of the bride's brother, T. Brix, Miss Eve Brix was married to Dr. H. B. Boyden of Grand Island, Rev. Mr. Arthur of Grand Island officiating. Dr. and Mrs. Boyden left for an extended eastern trip and after December 1, they will be at home in Grand Island.—Omaha Bee.

Dr. R. C. Byers, Councilor for the Fifth District, left the first of September for a trip through Alberta, Canada, going by the way of Seattle and Vancouver.

The Clay County Medical Society held their third quarterly meeting at Clay Center, August 30, 1916. The following papers were read: Medical Jurisprudence, Judge J. S. Logan; Dysmenorrhea, Dr. J. E. Ingram; Paralysis of Brachial Nerves with report of case, Dr. J. W. Archer; Sclerotic Condition of Abdominal Arteries, Dr. S. R. Hopkins of Hastings. After the meeting the society entertained the lawyers of the county and their wives at a six o'clock dinner.

A four-story building will be added to the Immanuel Deaconess Hospital at thirty-fourth and Meredith avenue, Omaha. It is to cost \$125,000. This was decided Tuesday at the annual meeting of the board of directors of the institute, which came at the close of a three days' celebration of the twenty-fifth anniversary of the founding of the institute.

About \$20,000 of the sum needed is already on hand.

The board of directors was reelected for the ensuing year as follows: Rev. P. M. Lindberg, rector; Deaconess Anna Flint, sister superior; Rev. F. A. Linder of Omaha,

Rev. Peter Peterson of Chicago, Ill.; Alfred Bloom of Omaha, Rev. G. A. Brandelle, D. D., of Denver, Colo.; Dr. J. E. Swanson of Sioux City, Ia.; Charles J. Olson of Lincoln, Rev. C. F. Sandahl of Oakland, Neb.; Rev. C. J. Petri, D. D., of Minneapolis, Minn., and Louis Lindgren of Oakland, Neb.

County Society Officers—Attention!

Do you want a conference to be held the day just preceding our State Association Convention at Lincoln, Neb., May, 1917. If so, write to I. H. Dillon, Auburn, Neb., secretary of our Council.

Our membership Oct. 1, 1916, is 1038. Many members have with enthusiasm commended our new official Journal. Occasionally one asks if we are to have two Journals in our State Medical Association for The Nebraska State Medical Journal and The Western Medical Review both come. Your money for 1916 gave you The Western Medical Review as our official Journal till the contract with its publishers terminated in May, 1916. Our House of Delegates in that annual meeting received and adopted the report of the committee appointed at our 1914 annual meeting, whose duty was to formulate and present plans at our May, 1916, meeting, for an official Journal to be owned and managed by The Nebraska State Medical Association. We did not renew our contract with, nor absorb The Western Medical Review, but beginning with July, 1916, issued The Nebraska State Medical Journal as our Official publication.

Joseph M. Aikin, State Secretary.

Library Notes.

W. P. Wherry, Librarian.

At the recent session of the Nebraska State Medical Society, an appropriation was placed at the disposal of the Librarian for use in furthering the interests of library.

The Library of the State Medical Society is small, but being housed with that of the University Medical School and the use of the latter being at our disposal, the two together afford a splendid opportunity for reference work. If any member of the State

Society wishes references upon a given subject, or should desire a complete bibliography upon that subject, the Librarian will be pleased to secure the same for him.

Arrangements have been made with the librarian of the University Medical School whereby this information can be obtained at a nominal cost. Reference work or bibliographies not requiring an excessive amount of time will be supplied without charge. Where reference work requires overtime on the part of the librarian, a small fee will be charged.

The establishment of our own Journal should bring many recent text books for review, and should any member wish to borrow the books for a limited time, they will be forwarded upon request.

Further, many State Journals will be received in exchange, and copies desired for reference will also be forwarded if possible.

The librarian of the College of Medicine, University of Nebraska, is very desirous of serving all of the profession in the state. If books are desired we are very glad to loan them for a reasonable length of time. A list of the bound and current periodicals contained in the library will be published and sent out soon in order that all may know what a complete file is at your command for reference work.

Hallie Wilson, Librarian.

College of Medicine, Uni. of Nebr., Omaha.

Syphilis of the Nervous System.*

L. B. Pilsbury, M. D., Lincoln.

There are no longer any parasymphilitic diseases. Syphilis often wrecks the central nervous system, but it does so in the same way that it wrecks the heart or the liver. Sometimes it affects chiefly the meninges of the brain or cord and sometimes chiefly the substance and why the spirochete hits upon a particular mode of distribution in a given case we do not know. The longer incubation period of Noguchi's brain spirochetes may have something to do with the slow and insidious development of most cases of syphilis

*Read before the Nebraska State Medical Association, Omaha, May, 1916.

of the central nervous system. That the meninges and perhaps the deeper tissues can be very much irritated in the secondary and early tertiary stages of luetic infection is shown by the results of spinal fluid examination in many of these cases, most of which presumably do not later develop either paresis or tabes. Perhaps the more violent the reaction on the part of the nervous system in the earlier stages of the disease the less likelihood there is of the later occurrence of cerebro-spinal mischief, though this is not certain. As to the proportion of syphilitics who later develop paresis or tabes we have the several times quoted and quite authoritative statistics of Mattuschek and Pilcz for Austrian army officers. Of 4134 officers who were infected with syphilis between 1880 and 1890 and whose histories were reviewed in 1912, 4.67 per cent had developed paresis and about 1.5 per cent tabes or a little over 6 per cent for both diseases. The existence of special neurotropic strains of the spirochete has been largely a matter of speculation.

There is little fundamental difference between paresis and tabes on the one hand and so-called cerebro-spinal syphilis on the other. Paresis is often grafted on tabes and the line of demarcation between these and other cerebro-spinal forms is often exceedingly vague. The literature of this, as well as of most other subjects in nervous diseases, is very extensive and I will not attempt to even scratch the surface. There are certain things that we rely upon as indications of nervous system involvement, such as positive Wassermann, pleocytosis, globulin increase, etc., but unfortunately these do not enable us to make a certain or valid distinction between different types. Kaplan, who gives 70 pages of titles in the serology of nervous and mental diseases, is convinced from his own experience and that of others that there is no royal road to diagnosis. He points out that Nonne's table of serologic differences between paresis and cerebro-spinal syphilis shows only one wide point of separation and that is in the number of positive Wassermanns when only 0.2 cc. of spinal fluid is used. Even this difference disappears with the use of larger amounts of fluid and the

whole thing may be altered by vigorous specific treatment. In untreated cases, however, Kaplan finds a distinct difference in the colloidal gold curve.

Certain pathologic distinctions are valid, at least in degree. Dunlap, who is an excellent observer, reminds us that the finer changes in general paralysis formed a rather vague and uncertain disease picture until Alzheimer, in 1904, established the disease on a firm anatomical basis. He showed not only degenerative changes, but also a chronic inflammatory process in both the gray and the white matter of the brain and cord with perivascular exudate consisting mainly of lymphocytes and plasma cells. Dunlap goes on to say that the diagnosis of paresis rests chiefly on the restriction of the exudate to the vessel sheaths throughout the central nervous system, except in the pia, and not on the character of the cells in the exudate. The amount of degenerative and inflammatory reaction does not closely parallel the intensity of symptoms and ante-mortem statements as to the extent of involvement and also as to the distribution are very hazardous. Failure of vision, speech defect, etc., will not locate the lesion for us within any narrow limits. The varieties of cerebral syphilis, on the other hand, instead of going all through the central nervous system usually play around the surface and affect chiefly the meninges and their blood vessels. Gumma may of course occur anywhere. Dunlap thinks that the question as to which is cerebro-spinal syphilis and which is paresis when they run so closely parallel as they often do is hardly worth settling, since they are varieties of the same fundamental process.

Symptoms of cerebro-spinal involvement coming on soon after the infection, especially with cranial nerve palsies, unequal pupils, altered reflexes, etc., make us think at once of cerebro-spinal lues rather than of paresis and yet general paralysis does not always wait the customary ten to twenty years before showing itself. That changes may be well advanced with few mental symptoms or even none at all has been shown by occasional cases of paresis at autopsy and some other cases run a short and stormy course, dying within a few months, usually with con-

vulsions. Head and his co-workers divide syphilis of the central nervous system into two main classes, syphilis meningo-vascularis and syphilis centralis, paresis and tabes belonging to the second group and representing one disease with a merely anatomical differentiation. Both give a positive Wassermann in the spinal fluid, which meningo-vascular syphilis may not, at least with small amounts. Kraepelin thinks that the various anatomical changes in paresis taken collectively, especially if widely distributed in the cortex, are as characteristic as the clinical symptoms, no one of which alone will establish a diagnosis. He emphasizes especially the accumulation of plasma-cells, the endothelial and new vessel proliferation, the wide extent of degeneration, increase of glia in deeper layers; also the distribution of the changes in pia and cortex, the pronounced involvement of the frontal portion and relative freedom of the occipital lobes. In making the distinction from syphilitic meningo-encephalitis he states that in the latter the process is directly dependent upon the meningeal involvement.

It is sometimes stated that a large increase in cells in the spinal fluid, for example above 100, points to cerebro-spinal syphilis rather than paresis. As a matter of fact one of the largest counts the writer has ever seen, 240 cells per cmm., occurred in the spinal fluid of a young man with early paresis and considerable restlessness. Subsequently under intra-spinous treatment the count fell as low as 51, but the Wassermann remained positive, though less strongly so. Later the patient was paroled in a remission. He had exaggerated knee-jerks and sluggish, but not rigid pupils. Another case, still in the hospital, which might fairly be called one of cerebro-spinal syphilis plus alcoholism, has had a reduction from 223 to 64 cells under mercurial inunctions with repeated punctures, but the Wassermann, although showing some variation, is usually positive. The patient had considerable mental confusion when he entered, perhaps partly due to alcohol. The left pupil was widely dilated and fixed and this has not altered, but the mind is now clear. Another patient has unequal pupils, the dilated one being quite rigid, ex-

aggerated knee-jerks and relatively little mental disturbance except peevishness and irritability. Under mercurial inunctions the number of cells has varied from 40 to 16 and the Wassermann is always strongly positive. The tri-chloroacetic acid, butyric acid and Ross-Jones tests are a little less strongly positive than they were. This patient had specific treatment, including at least two intra-spinous injections, before being brought to the state hospital. His infection was acquired 16 years ago.

As illustrating some of the difficulties in diagnosis may be cited the case of a man now 49 years old who has never been intemperate and does not think he has ever had syphilis. He has given a positive Wassermann in the blood, but negative in the spinal fluid and only 2 cells per cmm. with little or no increase of globulin. The pupils are sluggish to light, the knee-jerks reduced, there is some lack of bladder control and slight speech and gait disturbance. On the other hand the memory is very good and the patient, who is fairly well educated, can carry on a very intelligent conversation when he makes the effort. There is no disturbance of orientation. Another patient, a man aged 48 or 49, became somewhat confused and irresponsible about 18 months ago. At that time the spinal fluid was negative and last December both the blood and fluid gave negative Wassermans with little or no increase of globulin and only 4 cells per cmm. Three times since then the spinal fluid Wassermann has been positive with 1 cc. of fluid and twice it has been negative, while the number of cells has never exceeded four. The patient shows some failure of memory, exaggerated knee-jerks, slight speech and gait disturbance and is probably a case of paresis. Another patient, possibly a case of cerebro-spinal syphilis, but more likely one of paresis, has dimness of vision in central part of field of left eye, rigid and small, but slightly unequal pupils and no disturbance of gait or speech. Memory is good, but judgment impaired and at time of entrance there were grandiose delusions. These are not now so much in evidence, but the patient is still a little expansive. The number of cells has varied from 77 to 63, the globulin is always

increased and the Wassermann always strongly positive. It is also positive in the blood serum, but the patient has improved under treatment. We are still in need of a cure for paresis and still in need of a method of differentiation between paresis and cerebro-spinal syphilis. Until some more successful method of treatment is devised we must certainly agree with Dunlap when he says: "I look to prophylaxis in syphilis itself as the great hope of the future."

Note—Immediately after the writing of this paper there appeared in the Journal of the American Medical Association for May 20th, an article by Dr. Archibald Church entitled "Some Modern Views of Syphilis of the Nervous System." Among a great many interesting things the author gives the following, based on a personal communication to him: "To-day in Washington, in the laboratory of the Army Medical School, the investigators can produce several varieties of spirochete. They can breed a variety which will produce a hard chancre, or a variety which will produce a chancre lacking the old hunterian characteristics of a saucerlike, indurated base. They can produce a spirochete which will give a rich muco-cutaneous efflorescence, or a spirochete which will be poor in cutaneous manifestations, with a tendency to confine its influence on the nervous system."

Serums and Bacterins as Therapeutic Agents.*

Michael G. Wohl, M. D., Omaha.

(From Pathological Department of Nicholas Senn Hospital, Omaha)

Nature has provided the human body with fortifications against the ingress of pathogenic agents and supplied it with weapons for combating them after they have gained a foothold in the body. As long as there is constantly maintained a well balanced "status quo" between these agents and the factors of disease, the body remains in a healthy condition.

The *modus operandi* of the protective agents has been variously described. The explanation given by Vaughn, however, is the simplest of all.

According to Vaughn, (1) the infecting agents as we know them, bacteria, moulds, yeasts and protozoa are living proteins which are capable of growth and multiplication. Like all living units, in order to exist, they must get food of proper kinds to supply their metabolic requirements.

Micro organisms that cannot utilize the protein of an animal are not pathogenic for it, hence the mere presence of a micro-organism is not enough to produce disease. This explains why some animals are susceptible to certain diseases while others remain immune. For example, ordinary sheep are easily infected with anthrax, while Algerian sheep are immune to it. As Koch has shown, the bacilli of mouse septicemia and cocci that induce necrosis, multiply simultaneously in the white mouse, while the field mouse when inoculated with mixed cultures responds to the latter but the former fails to develop.

When foreign proteins, bacteria, etc., are introduced into the body they call forth the "reserves" which act on the defensive and which break up the extraneous substances into several groups, a primary chemical group (keystone) with which are connected secondary and tertiary groups. This archon is set free by ferments and is responsible for the symptoms of disease, for it constitutes the poisonous atom of the protein molecule. The secondary and tertiary groups are non-poisonous; they stimulate the body cells to the formation of new protective forces which have the power of rapidly digesting a homologous protein. Thus, in brief, the pathogenicity of a virus is determined by its ability or inability to grow in the body of an animal. Its inability to do this may be due to the fact that it either cannot utilize the body protein for its food or because the ferments of the body cells digest the invading bacterial protein. The whipping up of these protective forces is accomplished by sera and vaccines.

A serum is the product that is obtained from an animal that has been infected with micro organisms of this product's similar to those responsible for the infection which is to be treated. In other words there is manufactured in the body of the animal an army of defensive ferments or in the case of toxins probably antiferments which, after importation into the patient, help to combat the enemy (disease producing agents).

A vaccine on the other hand is a suspension of bacteria, dead or living. Vaccines constitute a stimulus to the body cells for

*Read before the Nebraska State Medical Association, Omaha, May, 1916.

the manufacture of their own ammunition (defensive ferments).

Sera. Among the well established sera are the anti-toxins of diphtheria, tetanus and snake poisons. Besides these there have been put on the market the so-called anti-bacterial sera for cerebrospinal meningitis, pneumonia, and for various streptococcic infections.

The points of similarity between the anti-toxins and anti-bacterial sera are: they both act rapidly, they are inoffensive yet possess the disadvantage of being transient in their effect. Thus, Beshredka found that animals which received anti-plague serum developed immunity as early as twenty-four hours after the injection. No general symptoms ensued from its administration. However, the protection against the disease lasted only fifteen days.

The evanescent character of the immunizing sera is probably due to the fact that they are excreted from the body like other foreign substances. For instance, it has been shown that when a measured quantity of tetanus anti-toxin is injected into an animal, only one-third remains after six days and no trace can be found after twenty-one days. (2)

The loss of immune serum is due not only to its being excreted, but also because it is destroyed by the tissue cells, especially if the immune serum is heterologous. To illustrate, anti-toxin from a horse administered to a child will disappear quicker than if it is injected into another horse.

The chief difference between the antitoxin and antibacterial sera is in their mode of action; while anti-toxins act in a chemical way, neutralizing the toxin produced by the germs, the anti-bacterial sera act in a lytic way; their action depending upon ferments (Vaughan) or amboceptor and complement (Ehrlich) by which bacteria themselves are attacked and destroyed. The anti-bacterial sera are of limited practical value. However, it is true that an anti-toxic serum may at the same time be likewise anti-bacterial.

The reasons for the failure of the anti-bacterial sera in therapeutics is first because they are produced in lower animals and do not find suitable conditions for their action

in another species such as man, and secondly because of the many strains of one and the same germ. For instance, (3) Neufeld and Handel, (4) Dochez, Gillespie and others have shown that there are more than two distinct types of pneumococci.

You can readily see how a serum produced with one type of pneumococci will not protect against infection with another type of the same germ.

The same is true of cerebrospinal meningitis. (5) aptain Ellis in a recent contribution gives a classification of meningococci based on agglutination obtained with monovalent immune rabbit sera and arrives at the conclusion that the meningococcus of cerebrospinal fever is of at least two types which are distinct and absolutely independent. In treatment of these diseases, better results would be obtained and more exact knowledge of the adequacy of the serum treatment gained, if the type of the offending pneumococcus or meningococcus were ascertained and a monovalent horse serum of the appropriate type were employed instead of the polyvalent sera at present in use.

In regard to anti-streptococcic sera, while in some cases they seem to benefit the patient, in others they utterly fail. "On the whole, the evidence bearing on the therapeutic value of the anti-streptococci sera is very far from being conclusive." (6)

The anti-toxic sera, on the other hand, have found a permanent place in therapeutics. The value of anti-diphtheretic and anti-tetanus serum is too well known to you to be commented upon. Allow me, however, to point out some practical features that have been brought out within the last year or so. While before, practically all persons exposed to diphtheria have received prophylactic injections, we know now that such a procedure is unnecessary since we can detect by the Schick's intradermic test persons who naturally are not protected against diphtheria and immunize only such individuals and not all who are exposed to the disease. Since the introduction of this test by Schick (7) a number of men have used it extensively in this country and all report favorably on its practical value. (8)

From a series of cases studied by us in cooperation with Dr. A. B. Adams we found that forty-eight adults averaging between 20 and 29 years of age, showed negative R reactions proving the presence of at least 1/30 of a unit of anti-toxin per C.C. of blood, which amount is of sufficient quantity to protect the individual against the development of the disease. Two of these adults (nurses) took care of diphtheria cases and have remained free from the disease until present.

A negative Schick test then indicates that the patient is possibly protected for life. The rest of our series proved as follows:

Children between 2 and 7 years, 22 cases and all proved positive R.

Infants under 1 year old, 6 cases negative.

This is in accordance with the findings of Schick (9) and others that infants possess diphtheria anti-bodies in 80 per cent; older children 50 to 60 per cent, and adults up to 90 per cent. Children between the age of two and five give the highest percentage of positive R. i. e., they lack diphtheria anti-bodies.

This test should find the broadest field of application as it means saving anti-toxin and avoiding the unnecessary annoyance to the patient as well as sensitizing of individuals to horse serum without any advantage.

Another important feature in the treatment of diphtheria is the amount of anti-toxin to be given. From the experiments of Schick it is evident that the dose of anti-toxin should be regulated by the body weight (10). One hundred units of antitoxin per kilogram of body weight, (a kilogram is equal to 2½ lbs. avoirdupois) is sufficient for all medium and severe cases of diphtheria. In the very severe cases 500 units per kilogram of body weight is the necessary amount. The antitoxin should be given at a single dose, for repeated injections at 6, 12 and 48 hours after first dose are superfluous.

If a diphtheria patient dies, it is not because of the insufficient dose of antitoxin but because the toxins formed in his body have had time to act before the antitoxin

(We wish to express our thanks to the National Vaccine and Anti-toxin Institute, Washington, D. C., for their kindness in furnishing the toxin for our work).

was injected. Therefore, early diagnosis and immediate administration of a single appropriate dose should be the keynote of the treatment. Reiche, (11) from a study of 6,250 cases of the recent epidemic in Hamburg, found that the mortality increased from 4.4 per cent when serum was injected on the first day to 33.6 per cent when serum was injected on seventh day.

For prophylactic purposes 50 units per kilogram of body weight is sufficient. The intra-muscular administration is the method to be used instead of subcutaneous since Henderson Smith (12) has shown that anti-toxin given subcutaneously is slowly absorbed and does not reach its concentration in the blood until 48 hours or more after the injection. For immediate neutralization of toxin the intravenous method is the most rapid.

Now to mention briefly a few points concerning the administration of antitetanus serum. Irons (13) has shown that tetanus toxins can be neutralized by antitoxin given intravenously plus injection into spinal canal. However, the preventive use of the antitoxin should be employed more extensively. Teutschlander (14) has found that the dangers of infection could be made negligible if the antitoxin is injected into the tissue surrounding any suspicious wound soon after the injury. The dose to be used is 1500 units and repeated when necessary. An anti-toxin impregnated pad, as described by Robertson (15), may prove of service. As soon as tetanus is diagnosed, from 3000 to 5000 units of antitoxin should be given into lumbar region of spinal canal and 10,000 units intravenously. The intraspinal injection should be repeated in 24 hours. The injection should be done under an anaesthetic to inhibit any possible convulsions. Nicoll (16) has found that the above described procedure has reduced greatly the death rate of those who already developed symptoms of tetanus.

Bacterins. Immunity that follows the administration of vaccines is more lasting than after sera. By means of vaccines we actually train the body cells to meet emergency on their own account. The prophylactic use of vaccines has been known since the time of

Jenner and Pasteur. The application of vaccines for treatment has been given wide popularity by Wright and his pupils. At the present time no man who wishes to remain in peace can afford not to be an adept at vaccine therapy; the representatives of the commercial houses actually compel one to employ vaccines in diverse conditions.

Owing to the promiscuous use of vaccines they have fallen into disrepute like tuberculins in the early days. There is no doubt, however, in the face of accumulated clinical and laboratory data that vaccines play an important role in treatment of cases properly selected, bacteriologically diagnosed and carefully guided.

During administration of vaccines local or general symptoms may ensue. In our experience with autogenous vaccines we found that if the patient develops a marked local reaction (redness, induration at sight of injection), and moderate constitutional symptoms such as slight rise in temperature, slight discomfort, etc., the ultimate results derived from the vaccines are more satisfactory than if the vaccines are not followed by any temporary local or constitutional changes. We have learned to welcome "Reactions" during immunization with vaccines rather than to fear them. When bacteria are used for vaccines they should retain as much as possible the potencies that they exhibit in the human body, for bacteria may undergo different transformations upon different culture media. For example, the pneumococcus hardly ever exhibits upon artificial culture media the capsule formation, or, as Rosenow (17) has shown that hemolytic streptococci may become converted into streptococci mucosus, pseudopneumococci, etc., therefore, vaccines should be made up from bacteria which are changed as little as possible.

We prefer to use primary cultures whenever possible for the preparation of our vaccines and we subject them to as little artificial changes as possible. A point which is of great importance and most frequently overlooked is the too rigid sterilization of bacterins. It should be born in mind that too high a temperature destroys the antigenic properties of vaccines. It is our rule, therefore, to sterilize vaccines from thirty

to forty-five minutes at a temperature which ranges from 56° to 58° C. If vaccines are used at all the autogenous should be preferred. Of course, the use of vaccines makes a pre-requisite of a bacteriological diagnosis. Really, this is the only scientific method of approaching the treatment of infection; the use of polyvalent vaccine as put out by commercial houses should be condemned. As Hektoen (18) well expressed it; by accepting the mixed vaccines of commerce, the physician abandons reason and begins to grope in the dark, forgetting that "a multitude of remedies is the child of ignorance."

Vaccines are of value in chronic and sub-acute localized conditions where complete healing is prevented: this probably is the result of lack of protective ferments (antibodies) in the blood for little of the bacterial proteid is absorbed. The stimulation of healthy tissue by specific germs (autogenous vaccine) is followed in such cases by the formation of bacteriotropic substances. When these are brought to the lesion the result is accomplished. It is our custom during immunization with vaccines to apply hot wet dressings to the part affected, if accessible, for the above given reason. Vaccines have proved of great value to us in furunculosis, otitis media, acne, (colon) cystitis, erysipelas of face, etc. Let us, however, not lose sight of the fundamental fact "that vaccine therapy cannot take the place of surgery whose function is to remove obstruction to recovery from disease which nature is unable to surmount." (19) The great surgical principle of drainage and removal of dead tissue must be first established before any benefit from vaccine therapy can be expected. The employment of vaccines in acute infectious diseases lacks scientific explanation. Nevertheless, striking results were reported following their intravenous administration in typhoid fever and pneumonia. (20). However, we shall have to be cautious in accepting this new method of treating acute disease until it is more scientifically verified and controlled.

Sensitized vaccines have proved more efficacious than nonsensitized. They were introduced into medicine by Beshredka in 1902. (21). By sensitized or sero-bacterins we understand that a suspension of bacteria is

mixed with immune serum and allowed to macerate a few hours, then the serum is removed, the bacteria washed in a physiological salt solution, and again suspended in saline, standardized, and dilutions made accordingly. During the process of sensitization the bacteria become saturated with their specific anti-bodies, as Ehrlich and Morgenroth have shown that bacteria mixed with their corresponding antibodies unite to the exclusion of all other substances present in the serum. When the sero-bacterins are injected into the body they are immediately acted upon by the complement and bacteriolysis results. The liberation of the nonpoisonous group of the bacterial protein occurs, and it stimulates the body cells to the formation of defensive ferments.

Sensitized vaccines have been used against typhoid fever, rabies, cholera and other infectious diseases and recently Myer (22) introduced sensitized tuberculins. Beshredka himself reports the application of sensitized vaccines in ten thousand cases, without any serious results following their administration. The advantage of sensitized vaccines is a more rapidly acquired immunity; the immunity acquired is durable and lasting.

The method employed for sensitization of bacterines, we believe, is not without its faults. As was pointed out above, the failure of many bacterial sera in therapeutics is because they are produced in the lower animal and do not find suitable conditions for their action in another species such as man. The anti-bodies of such a serum are beyond question somewhat different from those in the patient.

Rosenow has shown that bacteria undergo mutation not only in regard to their morphology but even to their reaction to agglutinins (23). If this be true it can be easily seen how streptococci used for immunizing a horse for serum sensitization may produce antibodies, (or opsonins of Wright) that vary from those of the patient. Therefore, it seems rational to assume that the action of a sensitized vaccine would be enhanced if we use the patient's own serum for sensitization: for under these conditions the patient's own anti-bodies are brought into contact with the specific virus. Working on this

basis we are at present using, at the Nicholas Senn Hospital, autogenous vaccines sensitized with the patient's own serum.

Another rather technical point is the freeing of the bacteria from the serum. During the process of washing the bacteria, one is apt to disunite the anti-bodies from the vaccine, thus failing to accomplish the desired end. We pointed out elsewhere (24) that complete absorption of the anti-bodies by the antigen is impossible and even when absorption is done repeatedly the anti-bodies remain in the serum. Now, by removing the serum we discard some anti-bodies, which may be of importance in raising the resistance of the patient. Therefore, we believe it rational not to remove serum from vaccines after sensitization, but to use the serum plus the vaccine.

The use of the mixture of the serum and vaccine has been employed by Lorenz (25) in hog erysipelas and in plague. (Salimbeni) (26). Friedberger (27) believes that immune serum after sensitization exhibits an inhibitory effect. However, this was not the case with out patients. On the contrary, they have shown no ill effects and the therapeutic results obtained were quicker and of higher degree. This is in accord with what Theobald Smith (28), Park and Zinger (29) have shown that when diphtheria-toxin anti-toxin is administered, the immunity that results is of higher degree.

Autosensitized vaccines were employed by us (30) in cases where a simple autogenous vaccine was indicated and we arrived at the conclusion that they are superior to the non-sensitized.

Bibliography.

1. Vaughan Protein Split products, Lea & Febiger, Philadelphia, 1913. Phenomena of Infection. The Harvey Lectures, 1913, 1914, Lippincott Co., Philadelphia.
2. Jordan General Bacteriology, Saunders, 1910.
3. Neufeld & Handel, Zeitschft f. Immunitatfor. Vol. 3, 1909.
4. Dochez & Gillespie, Journ. A. Med. Assn., Vol. 61, P. 727, 1913.
5. Ellis quoted in ed. of Medical Record, April 8, 1916. P. 653.
6. Jordan Loc. Cit.
7. Schick & Michiels, Zeitschft f. Kinderheil kunde, Vol. 5, 1912. Mun. Med. Woch, 1913, L X, 2608.

8. Park, Serota & Zingher, Arch. Ped. 1914, XXXI, 481; Journ. A. Med. Assn., Sept. 5, 1915, P. 859, Kolmer & Mochage, American Journal of Diseases of Children, March, 1915, etc.

9. Schick loc. cit.

10. Schick quoted in Ed. of the American Medical Association, Dec. 12, 1914, P. 2134.

11. Reiche, Zeit. f. Klin. Med. 1915. Parts 3 and 4.

12. Henderson Smith, Journal of Hygiene, Vol. 7, 1907. Quoted by Zinsser. Infection and Resistance, McMillan Co., 1914. P. 449.

13. Irons, Journ. Am. Med. Assn., June 12, 1915.

14. Teutschlander, D. Med. Woch, May 13, 1915.

15. Robertson, Journ. Am. Med. Assn., August 28, 1915, P. 798.

16. Nicoll quoted by Journ. Am. Med. Assn., Dec. 11, 1915, P. 2086; Journ. Am. Med. Assn., June 12, 1915, P. 1982.

17. Rosenow, J. Infectious Diseases, XIV, 1, 1914.

18. Hektoen, Journ. Am. Med. Assn., May 20, 1916, P. 1592.

19. Campbell, J. Michigan State Medical Soc., March, 1916.

20. Hektoen, loc. cit.

21. Besredka, Annales de l'inst. Pasteur, 1902.

22. Myer quoted by Zinsser, Infection & Resistance, McMillan Co. P. 357, 1914.

23. Rosenow, Journ. Am. Med. Assn., Feb. 1914.

24. Wohl Am. J. Med. Sciences, Aug. 1916, p. 262.

25. Lorenz cited by Hitchens Interest, Medical Journal, Volume XXI, No. 5, 1914.

26. Calmette & Salimbeni, Annales de l'inst, Pasteur, 1899.

27. Friedberger, Berlin Klin Woch. 25, 1902.

28. Theobald Smith, Journ. Am. Med. Assn., Vol. 60, 21, 1913.

29. Park & Zingher, Journ. Am. Med. Assn., Dec. 25, 1915, P. 2217.

30. Wohl, Medical Record. April 29, 1916.

DISCUSSION.

Dr. F. A. Wells, West Point.—I am a very enthusiastic advocate of the serum treatment under certain conditions. My experience is limited, but I have had a case of erysipelas of the body in which I used the anti-streptococcic serum. I gave two injections, the first injection seemed to almost stop the infection, but not quite. It began to spread again and I gave another in five or six days and it entirely stopped. I gave twenty cubic centimetres at each injection. I have not had much experience with vaccines, but I believe they are a great help.

Dr. Breuer, Lincoln.—I would like to have Dr. Wohl give his opinion as to whether pus incubated will help to determine the resistance of the patient, also as to the injection of pus itself. We know that organisms in subcultures are many generations removed from the original organism. There may have been a great many changes and we may be dealing with an entirely different organism with entirely different characteristics and properties. I have tried this in two cases, the first of which I think I can

say it did no harm, and the second case I tried seemed to show good results.

Dr. Homer Davis, Genoa.—This is a fine scientific paper, but there is one feature of the paper in regard to the quantity of diphtheria antitoxin that I feel ought not to go undiscussed at this time. It was my honor to have a paper before this association about three years ago on the subject of diphtheria, and just at that time our community had passed through a very trying epidemic of diphtheria. My experience in about thirty-five cases in about three months time bore out the use of greater dosage of antitoxin than was advocated in the paper. As the doctors here know, we meet this disease on our first visit in various stages of development. Many times we are not called until the second or third day of the disease, possibly as late as the fifth. I have seen cases in the country that were six days old. Now it has been my experience that if we meet an early case, as the doctor says one hundred units per kilogram (which is as I figure it out about 10,000 units for 125 pounds), would possibly be all right, but if we meet a case that is forty-eight to seventy-two hours old it is my experience that this dose should be doubled, possibly trebled. In order to get quick action of the antitoxin we should without fail inject the dose intravenously. This should not be delayed because after the injection intra-muscularly or hypodermically the maximum influence of the antitoxin is not manifest for thirty-six hours.

Dr. Wohl, in closing: In regards to the process of determining whether pus incubated will serve as an index of resistance of the patient; I have personally had no experience with it, but it has been tried out with some success in the French army recently.

In regards to injection of the pus itself, some years ago Doctor Duncan of New York advocated the use of pure pus not only by injection, but by giving it by mouth, and he says that in cases where the patient cannot reach the wound there is no danger in taking a piece of gauze and saturating it with the pus and giving it to the patient to suck. This method will hardly become popular for aesthetic reasons. However, there is a scientific objection to the use of pus as a vaccine. If you sterilize pus in order to destroy the virulence of the germs then by this process you break up tissues and thus inject not only attenuated bacteria but also derivatives of body and bacterial proteins which, as you well know, contain Vaughn's toxic group. It seems more reasonable to obtain a culture from the same pus upon an appropriate medium and use the primary cultures if possible, and in this way you change the bacteria as little as possible and more satisfactory results may be obtained.

In regard to the use of diphtheria antitoxin. I emphasized in the paper that if a patient dies, it is not because of the insufficient quantity of antitoxin, but of its late administration; the toxins formed in the body have had time to combine firmly with the cells and damage the tissues irreparably.

A Neglected Point in the Etiology of Diseases of the Feet.*

D. T. Quigley, M. D., Omaha.

About twenty-six years ago in the clinics we saw a good deal of "idiopathic bubo," which our learned professors did not attempt to explain. These cases were called idiopathic because the cause was not known. They developed in men who did not have gonorrhea, chancroid or chancre. I noticed that these cases always had a foul condition of the foreskin and I strongly believed that there was a connection between the dirty foreskin and the bubo. A few years later I was gratified to find that "idiopathic bubo" as a name had disappeared in the clinics and it was being taught that the dirty foreskin was the direct cause of the bubo; the germs gaining entrance through the macerated foreskin. But what has this to do with feet?

For answer I would have you remove your shoes and examine the skin between your toes. You will find that it is in the same condition as the foreskin in a case of so-called "idiopathic bubo." You will find the skin badly macerated, foul smelling, and the whole surface badly infected. If you doubt that infection exists, there is the bad smell of putrid, decaying skin that could come from nothing but bacteria decomposing animal matter. If you doubt the fact that there are open places, places denuded of epithelium, soaking up septic material to poison the whole body, then swab between the toes with tincture of iodine and compare the results with the same process on the healthy skin.

The actual condition of the feet of the man or woman of today is one of chronic infection in the skin, particularly the skin where two surfaces touch as between the toes. It is a well known fact that wherever two skin surfaces lie in contact for any length of time maceration of the skin and consequent infection is the result. We find this in fat women where the breasts hang down and touch the body or where the abdomen comes in contact with the thigh. Fat babies suffer a good deal from this sort of thing in the groin and between the buttocks. In areas where normally skin surfaces must meet as under the arms and between the legs nature has pro-

vided a supply of hair to provide for evaporation and prevent maceration. If nature had intended us to wear the present day foot dress we would probably be born with a thick pad of hair between the toes.

The bad condition of the feet is caused by three factors which are supplied by modern leather shoes. The shoe being practically air tight, exaporation is prevented. This causes maceration. The greatest enemy of germ life is light; but inside the shoe it is absolutely dark. Darkness helps the growth of the bacteria. The organ (foot) is put up in a splint. This favors the continuance of chronic infection. The sole leather splint which we wear on our feet might be a good thing in an acute infection but as a daily article of dress it is just as weakening to the muscles underneath as a splint on the arm would be to the muscles of the arm.

The foot is the organ furthest removed from the heart. The blood to return to the heart must make an uphill trip. Therefore in the feet we may expect the circulation to be the weakest, the resisting power of the cells at the poorest and all the life processes at the lowest. Poynton and Payne, also Rose now, have shown that the coccus which causes rheumatism and kindred ailments grow best at a temperature lower than the normal body temperature. This points out the reason why we "catch cold" from wet feet or cold feet, and why a hot foot-bath may do something toward making the sufferer from a cold feel better.

In the unhygienic condition of the feet caused by the modern shoe the nails frequently become points of infection. The most acute of these nail infections is called "ingrowing nail." A much larger percentage of the nails are pressed into the skin by ill fitting shoes and act like slivers of foreign material but do not become acute. These can be demonstrated with tincture of iodine. The iodine will cause a smarting pain in the open, diseased place around the nail just as it will when swabbed between the toes.

The remote effects of such a local process cannot be denied. Bodily vigor must necessarily be considerably below par. The feet may become centers of metastatic infection and foci may develop in any part of the body.

*Read before the Nebraska State Medical Association, Omaha, May, 1916.

Frauenthal of New York in a recent article in the Journ. A. M. A. takes the position that foot troubles are frequently caused by metastases of infectious material from the mouth and throat. This undoubtedly occurs, but only after the threshold has been lowered to infection, and the joints of the feet made points of low resistance by absorption of toxic material from around the toes. Frauenthal goes to a distance to find the causes for foot trouble and overlooks a much more potent cause in the immediate vicinity. Blum of San Francisco in an article in the Archives of Pediatrics, Nov. '15, has shown that the tonsils may act as excretory organs. Certain specific substances injected into lymph glands were found later in the tonsils and in the mouth. We may find therefore that instead of this being a matter of infection from the tonsils carried to the feet, that the tonsils are trying to throw off infection that the blood and lymph streams have absorbed from the feet.

In the immediate neighborhood of the infected toes we may expect the lymph stream to be saturated with toxic material having a poisonous and weakening effect on the muscles, ligaments and other structures of the foot. The joints become enlarged and tender, the muscles of the leg suffer and undergo elongation and rheumatism develops in the ankles, knees, muscles, and nerve trunks. Many and various are the foot troubles that may be traced to the unhygienic condition of the feet. The list may contain nearly everything from flat foot to corns, from bunions to sciatica. Taking this view of the etiology of most foot troubles the treatments that have been used in these conditions seems most unreasonable. Operations nearly always give good results because the patients are put to bed in the hospital the feet are kept clean and rested for a couple of weeks. It will be remembered that Frauenthal, Mayo and others have reported good results with operations. Some of these operations have been done on the feet; some on the mouth and throat, some on the legs, but all have been successful for the same reason stated above; the patient is put in a hospital and his feet kept clean and rested.

It would be interesting to go into the ques-

tion of the benefits that might come to certain classes of people were a rational hygiene of the feet observed. It is readily apparent that benefit might be derived in this connection by nurses, factory hands, mail carriers, policemen and soldiers. The curse of unclean and diseased feet goes much further and affects practically all civilized people. In this respect we are much worse off than the Chinese whose foot dress we are prone to criticise

What is the remedy? The best remedy would be the same freedom for the feet as the hands. The ideal foot dress is the sandal without a stiff sole and without stockings. But we cannot wear bare foot sandals without shocking our neighbors so the next best thing would be a thin leather soled shoe wide enough so that the toes will not touch when the person is standing. In order to prevent skin surfaces touching, a separate compartment should be made in the stocking for each toe the same as in gloves. The stocking as well as the shoe should be as thin as possible. The shoe should only be worn when actually necessary, outdoors, in bad weather, etc. Indoors we should go with bare or stockinged feet. If ordinary stockings are worn pieces of blotting paper, newspaper, or wick should be kept between the toes to prevent maceration of the skin where skin surfaces touch. If leather shoes must be worn the thinnest, softest kid should be used with as thin soles as possible, and with the toes protected from contact. Even though the feet be washed twice a day it is impossible to keep them in a hygienic condition if the ordinary leather shoe is worn.

In conclusion the main cause of foot trouble is the wearing of shoes which prevent evaporation and permit contact of the skin surface of the toes promoting a low grade chronic infection with local and general symptoms. I consider that the average individual's efficiency and years of life are reduced at least 20 per cent by irrational foot dress.

The remedy is not arch supports or operations or corn plasters but the application of the same rules of hygiene and a consideration of the same laws of physiology and pathology that we would use in dealing with any

other part of the body; that the organ be kept clean and dry and that it be allowed its natural mobility.

DUSCUSSION.

Dr. H. W. Orr, Lincoln.—This matter of foot disability becomes important if you remember what Dr. Quigley said in regard to the percentage of people who have trouble. He gives the figure as 20 per cent which I think is not far wrong. It is perfectly amazing if you are studying feet, to find how many people are incompetent by reason of foot difficulty and foot distress. I know physicians and many others who certainly do seem to be handicapped by the style of footwear they adopt. This applies, however, more particularly to women. Women who are on their feet all day or a good share of the day, subject themselves to a great degree of distress, and they not only cut down their efficiency during the day but their hours of rest at night.

I think that physicians are to a large extent to blame for the existence of this situation. I find it to be true, that many of these people have consulted physicians who looked upon foot troubles with a careless eye and let the patient resort to the shoe stores and patent medicines for relief. Too many shoe stores undertake to prescribe for these patients.

The fact of the matter is that more than one-half of all the patients who come to me tell of some physician having recommended shoe store treatment and having tried the osteopath, chiropractor and corn doctor and still had no relief. I desire to urge, not that you send all these patients to the orthopedist but that physicians spend a few hours acquainting themselves with the common diseases of the feet and their remedies. If each physician would spend a matter of even a few hours acquainting himself with the requirements of feet he could contribute very largely to the welfare and the efficiency of many patients. Correctly fitting shoes may be obtained at almost any shoe store.

Dr. Quigley made a splendid point regarding the absorption of toxic and infectious material from the surfaces between the toes. There is no question but that this is a condition we find many times. I desire to command his remarks to your consideration.

Report of the Committee on State Association Medical Journal.*

Your Committee appointed two years ago, was instructed by the resolution calling for the appointment of the committee, "to take steps to create a Nebraska State Medical Journal after (the annual meeting of) 1916." The language of the resolution makes the duty of the Committee clearly imperative.

Investigation by the several members of the committee has convinced the full com-

mittee that it is entirely feasible for the Nebraska State Medical Association to create, own and conduct a high class State Medical Journal, and the committee strongly recommends that the proposed Nebraska State Medical Journal be established at this annual meeting.

In working out the various problems presented to the committee under the instructions, the committee has satisfied itself that enough advertising patronage is in sight, which added to the amount heretofore set aside from the dues of each member (\$1.25), will pay for the publication of a creditable Journal beginning with the first issue. Having determined to recommend the establishment of a State Medical Journal it seemed incumbent upon the members of the committee to have enough advertising patronage promised, contingent upon the establishment of the Journal, to assure the House of Delegates that the Journal will be self supporting. A prospectus was issued setting forth the purpose of the Nebraska State Medical Association to establish a State Journal and containing a list of advertising rates (the said rates based on the rates of other state journals having about 1,000 members in their associations, and also containing a blank contract form).

The suggestions of the Co-operative Medical Advertising Bureau to fix on special positions for preferred rates was adopted by the committee and made to apply to preferred space.

The responses to this appeal have been surprisingly generous, and the committee now holds contracts contingent upon the establishment of the State Journal for 16 $\frac{2}{3}$ pages, net value in cash \$1,660.00, enough together with amount heretofore paid per member to assure financial stability from the beginning. There are good reasons to believe that during the first six months the advertising patronage may be much increased, and that in time the State Journal may become a source of profit to the Association.

Your committee recommends that the size (8x11 inches), quality of paper, mechanical execution and general make-up of The Journal of the Iowa State Medical Society be adopted as a standard for the Nebraska

*Report presented to House of Delegates, Nebraska State Medical Association, May, 1916, by F. A. Long, Chairman.

State Medical Journal, investigation having shown this form to be desirable from a number of standpoints, notably that of economy, and giving room for a double column page.

On the first of May a circular containing specifications for the proposed Journal was sent to a selected list of printers with a request for sealed bids for the publication, addressing and mailing of the proposed Nebraska State Medical Journal for a period of one year from July 1, 1916, bids to be filed with the Chairman of the Committee by noon of May 10, 1916.

Bids were received from The State Journal Company, Lincoln; The Huse Publishing Company, Norfolk; The Douglas Printing Company, Omaha and the National Printing Company of Omaha.

Later the committee decided, that inasmuch as the reading page of the proposed Journal is to be fifty per cent larger than the reading page of the pre-existing official Journal, it would be wise to begin publication with about forty-eight pages. The two low-

est bidders were, therefore, asked to submit bids on a forty-eight page Journal.

From the figures submitted it appears, therefore, that the mere publishing and mailing of a Journal need not cost above \$2,000 for the year.

The matter of an editor for the State Journal is an important one. Your committee has had this matter also under serious consideration. A number of high class medical men are available for the position of editor. Your committee does not feel it incumbent to recommend any person for editor; but the committee is certain there need be no expense for the editor for the first year, beyond the clerical hire that will be necessary for the work.

A By-Law to cover the establishment of a State Medical Journal has been prepared and will be offered for your consideration.

Respectfully submitted,

F. A. Long, Chairman.

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SYMPOSIUM ON SCARLET FEVER.

DIAGNOSIS.*

H. M. McClanahan, M. D., Omaha.

Up to the present time there is no laboratory test for scarlet fever, no throat culture as in diphtheria, or blood test as in typhoid. While careful cultures from the throat, nose and ears by many observers, constantly reveal presence of pathogenic organisms, none of these has been identified as the cause. Scarlet fever occurs in all degrees and indeed at all ages, although most prevalent among children. It is sometimes so mild that the patient is free from symptoms within twenty-four hours, so severe that the patient is confined to bed for weeks; or so malignant as to overwhelm the vital forces and prove fatal in one or two days. Between these extremes are all grades and varieties. The diagnosis must be based upon the clinical symptoms, and in these we are not in advance of our predecessors. In my opinion the best clinical descriptions are to be found in the older text books, and these will abundantly repay a careful reading. I would especially refer to J. Louis Smith, Miegs and Pepper, Comby and Forcheimer's article in the Twentieth Century Medicine, Thompsons masterly article in Ziemssen's, and Busey in Keating's Encyclopedia. As these authors depended upon the clinical symptoms without the aid of modern laboratory methods, their descriptions were most minute. Among the more modern writers I would especially mention McColum in Osler's System. During his life he had charge of the contagious department of the Massachusetts General Hospital. His descriptions are based upon

his personal study of 5,000 cases. He asserts that there are many mild cases of scarlet fever that go unrecognized, and that it frequently occurs in infants during the first year of life.

Another article well worth reading is by Von Pirquet in Pfaundler and Schlossman's Encyclopedia. This article is based upon the study of 1000 cases occurring in the Children's Hospital in Vienna. I may add in passing that this author recommends Moser's serum in the treatment of severe scarlet fever.

In typical cases having initial vomiting followed by fever, sore throat and erythematous rash, there is no difficulty in making a positive diagnosis usually within twenty-four hours after the development of the symptoms. In the irregular cases of the mild type and in some of the septic cases, there is serious difficulty, and no doubt mistakes in diagnosis are frequently made.

We will now take up and discuss briefly the individual symptoms.

First. Emesis: This occurs as the initial symptom in a large number of cases in severe as well as mild types. As a rule there is but one act of vomiting. It is safe to say that this occurs in at least one-half of all the cases. The vomiting is probably vicarious, and is an effort on the part of the stomach to eliminate certain toxins from the blood. When this symptom occurs in a child previously well, it should at least excite our suspicion. In acute indigestion the vomiting is usually repeated.

Second. Chill: A slight chill or chilly sensations, is quite frequent. In some cases there are convulsions. Indeed the convulsion is synonymous with the severe chill. This

*Read before the Nebraska State Medical Association, Omaha, May, 1916.

chill may precede or follow the emesis, or it may occur without any vomiting.

Third. Tongue: In all varieties of Scarlet Fever the appearance of the tongue is quite characteristic. It is coated with a white fur and within the first twenty-four hours the papillae becomes injected and red and show through the white coating, giving a strawberry tongue. On the second or third day the white coating disappears, but the papillae remain enlarged, giving the tongue a slightly rough feeling to the touch. In indigestion it is true that the papillae are often swollen, but according to my experience the coating does not disappear as in scarlet, and if caused by indigestion the coating has more of the yellowish tinge. In severe cases of scarlet, the tongue remains dry and glazed as if a coating of varnish had been applied. This is always an evidence of severe general infection. In the milder cases the tongue remains moist, but in all cases it is abnormally red.

Fourth. Throat: A careful inspection of the throat is very important in making a diagnosis. Because it is usually difficult to examine a child's throat, this part of the examination is too often carelessly performed. In any suspected case, we should get the child in a good light, and take adequate time to inspect the palate, the tonsils, the half arches and the posterior wall. In scarlet the entire pharynx is red. The crypts of the tonsils may or may not show a white exudate. Their size will vary owing to their previous condition. In all of this there is nothing characteristic. In scarlet fever we find very constantly that the mucous membrane of the soft palate, and extending well up onto the hard palate is not only redness, but the papillae are swollen, injected, and of a deeper red color than the surrounding mucous membrane. This is the real enanthem, and in my experience is a very constant symptom in the lighter cases. Indeed, the red throat with the swollen papillae should always excite our suspicion. The enanthem of measles is more blotchy in character, except in the mouth where we often find Koplic spots. I think it is rare to have this appearance of the throat in cases of acute indigestion with vom-

iting. Enlargement of the cervical glands while frequently present, has no special diagnostic value.

Fifth. Rash: This is a most characteristic symptom in scarlet fever. The typical rash is an erythema with increased redness of the papillae of the skin and in the regular cases it spreads from the neck over the trunk and extremities. In irregular cases the rash may be evanescent. It may be delayed and it may appear only upon certain portions of the body. In these cases it is usually best observed upon the lower abdomen, the inner surfaces of the thighs and the anterior surfaces of the elbows. The characteristic feature of the scarlet rash is its punctate appearance. In some cases the primary rash may be obscured by other varieties of eruption. For example: In children who have been kept heavily covered in bed in a very warm room, there may be an abundant crop of sudamina. These small vesicles will give the skin a rough feeling and will obscure the rash. In some cases with severe general infection, it may even have small pustules. It is well to remember that scratching will alter the primary character of the eruption. Certain drug eruptions may deceive us, but in doubtful cases we should inquire into the history. We may get rash in children from quinine, belladonna, antipyrine and antitoxin and other serums. Kerosene oil produces a redness almost identical with that of the scarlet fever rash. Turpentine produces a more even redness. If a child is not seen until the second day of the sickness, the rash may have faded and not be in evidence at the time of our visit. Sometimes people who dread the quarantine will attempt to deceive us.

Another symptom which to me is very important, and one that is not mentioned in all of our text books, is the peculiar flushing of the face associated with pallor around the mouth. This sometimes is important because it is most noticeable during the first two or three days. It is usually mentioned by all Russian authorities of whom I have knowledge. As is well known, scarlet fever is constantly endemic in Russia.

There is nothing characteristic about the

urine. We usually find a trace of albumin in the early days. However, this is frequent in all acute infections in children. I may add that the trace of albumin in the early days is not a serious symptom.

In conclusion: I have not spoken of the temperature as it is not characteristic. The fever of course varies owing to the severity of the infection. In the mild cases the diagnosis must be based upon the appearance of the throat and the evidences of rash upon the skin, hence, I wish to emphasize a more careful inspection of the throat in all suspected cases.

Where a diagnosis is not made, then unfortunately in some of the light and irregular cases the only proof as to the nature of the disease is the desquamation, appearing usually in three or four weeks. As is well known, school inspectors occasionally find these cases. In the writer's opinion there is no danger of contagion during this period. The danger was during the first few days when the liberty of the child was not restricted. There is no other acute disease of children that presents this late symptom and when distinct desquamation is found on the hands and feet of a child, it is almost certain proof that this child has recently had scarlet fever. This suggests the important question as what to do with these cases where there is a doubt as to diagnosis. If the child taken sick with fever and slight sore throat could be quarantined a few days before being reported to the Board of Health, it seems to me it would tend to control the spread of the disease. I know from personal experience that many people hesitate to call a physician where the child does not seem to be seriously sick, because of the dread of a long quarantine.

In view of the experience in the Providence Hospital where contagious diseases are treated in one large room with simply a wall six feet high separating the very few cross infections that they have, is it not time that we seriously modify some of our quarantine regulations? Personally, I believe that the spread of the disease is more likely to result from unrecognized mild cases than from the very severe cases where from the nature of the case the child is confined to its bed.

THE EPIDEMIOLOGY OF SCARLET FEVER.*

J. Clyde Moore, M. D., Omaha.

The discussion of the epidemiology of scarlet fever will be taken up under the heads of

- 1 Etiology
- 2 Modes of Transmission
- 3 Modifying factors such as seasons and age
- 4 Morbidity rate
- 5 Mortality rate
- 6 Prevention of transmission.

Etiology.

A large number of organisms have been discovered and credited with being the cause of scarlet fever but with the exception of two have been discarded. The streptococcus has been the organism which has been the most studied in its relation to this disease. Ludwig Hektoen in 1907 reviewed the work done and came to the conclusion that the specific cause of scarlet fever was unknown and that the streptococcus was a secondary invader which found an especially favorable soil in the conditions of this disease. Karl K. Koessler of Chicago in 1912 reviewing Hektoen's work and the work done between 1907 and 1912 says that the following facts have been established in regard to the streptococcus. (1) It is constantly present in large numbers in the throat and tonsils. (2) It is very frequently found in the blood during life and in most of the organs after death. (3) It is the cause of by far the greatest majority of complications and deaths. (4) Antibodies to the streptococcus are found in the blood. In order to ascertain whether there could be some other substances or organism which could cause scarlet fever aside from the streptococcus, he examined the serum of 118 cases of scarlet fever for a specific antibody other than that of the streptococcus. 68.8% showed the presence of this body. For this work he used as the antigen the extract of the cervical glands from severely toxic cases which had died before streptococcus invasion. By cultural methods he determined the absolute freedom from any streptococci. He used sheep's corpuscles sensitized to rabbit's

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serum as the hemolytic system, the cervical glands extract from the toxic scarlet fever cases as the antigen. The Wasserman technique was used. He reached the following conclusions.

- 1 The serum of scarlet fever patients contain specific antibodies for an unknown virus.

- 2 This unknown virus seems to be present especially in the cervical lymph nodes.

- 3 The antibodies are not demonstrable in the blood before 8 to 14 days and are active until 12 or 16 weeks.

As further proof of the role of the streptococci, Cantacuzene-Bernhardt-Landsteiner and Levaditi injected monkeys and produced scarlet fever. They found that injections of streptococci alone constantly failed to produce the typical scarlet fever but that it could be produced by using extracts from the cervical glands of scarlet fever patients.

Dr. R. W. Pierce of England by clinical observations showed that the scarlatinal erythema produced by streptococci did not immunize the individual to true scarlet fever. He quotes several cases in which the patients suffering from the streptococcic infection mistakenly diagnosed scarlet fever had been put in the scarlet fever ward of the hospital and after a normal incubation period had been taken with a typical scarlet fever.

The question has been brought up in regard to our own epidemic as to whether it may not be due to a streptococcus infection, similar to the streptococcus infection of the so-called la grippe cases. The fact which has been clinically observed that a number of cases have had both the typical scarlet fever and the streptococcus infection called la grippe would indicate that neither one protects the individual from the other and consequently are not identical infections. Another fact which seems to me to point to a difference in the two types of infection is that at least among the cases which I have been able to study, there has been no case of this infection in an individual having a clear history of a previous scarlet fever. These are

simply clinical observations and are open to discussion.

The foregoing facts give the role of the streptococci as believed by most observers at the present time.

The latest work on the etiology of scarlet fever has been done by Drs. Mallory and Medlar in the South Department of the Boston City Hospital. On account of Dr. Mallory's reputation as a scientific worker and a man of extreme conservatism, his work may be considered to be of the greatest importance. Last week he published the following description of the organism which he believes to be the cause of scarlet fever and which he names *B. scarlatinae*.

"The bacillus is found in the crypts of the tonsils and in practically pure cultures in the pillars of the fauces and soft palate including the uvula and the root of the tongue and scattered along the trachea wherever the epithelium is removed. It is strongly gram-positive, stains well with ordinary dyes and shows a tendency to irregularity of staining in lightly stained preparations. There are no polar bodies. In cultures it is found to be slightly smaller than the diphtheria bacillus and varies from a coccus like shape to large bacillary forms. The average size is 1 to 3 micra in length by .5 to .7 micron in diameter. It is broadest in the middle and tapers slightly toward the ends which are rounded. It is a facultative aerobe. It grows best anaerobically upon serum-glycerine (3%) dextrose-agar. It dies out quickly in the lesions so that after the 2nd or 3rd day following the eruption it is difficult or impossible to demonstrate it but it opens the way for streptococcus invasion and seems to favor its growth."

If this proves to be the cause of scarlet fever, prophylaxis may be as exact as in the case of diphtheria. At present prophylaxis is dependent upon prevention of transmission of the disease. Scarlet fever can be carried by direct contact, by a third person, by articles of clothing, toys, flowers, etc., which have been in contact with a scarlet fever patient and by milk supply. These can be grouped into two main classes—conveyance

by direct contact and by an intermediary body.

In investigating the present epidemic in Omaha the means of transmission was ascertained as clearly as possible in 80 cases of which we have fairly accurate records. The cases showed as follows:

Source of infection:

1. In same family.....	24%
2. Others in neighborhood.....	10%
3. From school.....	35%
4. Undiagnosed cases.....	12%
5. Third party.....	2%
6. No ascertainable source.....	17%

This makes the total of actual contact cases 81%, through an intermediary body 2%, and unknown 17%.

In order to ascertain the relation of the milk supply to the epidemic, we investigated the source of milk for each case. In the 80 cases there were some 25 different dairies. These were from all sections of the outlying districts and no direct line of spread of the disease seemed to follow any milk route so that we feel that in this case the milk supply can be entirely freed from blame for the epidemic. While we could trace no relationship between milk supply and the spread of the disease here, several authors have reported large epidemics due to that cause. Trask collected 51 scarlet fever epidemics caused from the milk supply. Twenty-five of these were in the United States and twenty-six in England. In thirty-five of the epidemics a case of scarlet fever was found at the producing farm, the distributing dairy or the milk shop. In three of the outbreaks, bottles were returned from infected houses and refilled without previous sterilization. In three cases scarlet fever patients handled the milk or milk utensils and in twelve outbreaks the cows were milked by persons having scarlet fever. In one epidemic the same person milked the cow and nursed the patient.

One of the largest milk borne epidemics occurred in Boston in April and May, 1910. There were 842 cases and 70% were on the route of one big milk dealer. Cambridge at the same time reported 155 cases and over 80% were on the route of this same milk

dealer. On April 27th the milk was pasteurized and by May 7th, there was a sharp decline in the number of cases and the epidemic was soon controlled. The centers of the epidemic here seemed to be about certain school houses and churches. For example, the renewal of the epidemic in the fall first centered about a school in the extreme northwest end of the city and for some time was confined fairly well within the limits of this school district until the school vacation at Christmas time. It then spread more rapidly southward.

One focus of infection with which I was acquainted was a church in the north part of the city. During a Christmas entertainment held here a large number of children were exposed on account of the attendance of an undiagnosed case of scarlet fever. At least 18 cases of scarlet fever resulted. I believe that this example shows the usual method of spread of scarlet fever. The moving picture shows, churches, theatres and schools all have their share in helping the epidemic along.

It is interesting to note the route which the epidemic took. The epidemic really started in May, 1915, as the number of cases reported for the preceding five months average but 12 cases a month. In May the number of cases reported jumped to 72. Approximately 85% of these cases came from a district bounded by eleventh street on the east and 23rd street on the west, Pierce street on the north and Center on the south, that is the southeast section of the city. From here it gradually spread north until nearly the whole city had been visited. South Omaha and Dundee had very few cases.

In 1914 there were reported a total of 363 cases of scarlet fever in Omaha with 14 deaths. From May 1st, 1915, to May 1st, 1916, there were 1651 cases reported with 72 deaths. The report of the cases by month was as follows: May 72 cases, June 107 cases, July 66 cases, August 36, September 62, October 64, November 69, December 146, January 362, February 343, March 209, April 115 cases. The curve plotted here shows the relation of the epidemic to the seasons. This curve corresponds with that based on govern-

ment reports of the prevalence of scarlet fever for the last two years. These reports show a diminution of cases reported in summer with a gradual increase in the fall and early winter and a very decided increase in January, February and March. This relation of the spread of the disease to the season of the year is probably due to two main factors—1st, the closer association of children in schools and other indoor places in winter months, and 2nd, to the greater prevalence of infectious conditions of the nose and throat during this season. Inasmuch as we do not know the life history of the causative organism, we cannot say whether or not the heat of the summer months has a direct effect upon the organism itself. It may have.

Another point investigated in this epidemic was the relation of the number of cases to the ages of the individuals affected. The average text book gives the ages between 4 and 18 as the ages of greatest susceptibility. While in general this was borne out in the present epidemic, the per cent of cases over 18 years of age was greater than usual. The youngest case reported was 3 months of age and the oldest 74 years. The total number of cases studied from the standpoint of age was 1359. 257 of these were over 18 years of age.

The case rate per 1,000 of population was 7.13.

The mortality rate per 100 cases was 4.3.

In 1914 the case rate per 1,000 of population was 1.81.

The mortality rate per 100 cases was 3.75.

An interesting observation in present epidemic is that of the 72 deaths, 1/3 of them or 24 cases were in those over 18 years of age. This makes the mortality rate per 100 cases for those under 18 years of age 3.8 while that for those 18 or over was 9.3. This is the reverse of the usual statement in regard to scarlet fever epidemics. The mortality rate varies in different epidemics. In the statistics of the U. S. Public Health office, we find that in 1912, 21 states reported a total of 71,337 cases of scarlet fever with 2,723 deaths and mortality rates varying in different states from a maximum of 11.11 to .07 with an approximate average of 4.

In 1913, 27 states reported a total of 73,952 cases and 2,219 deaths with same differences in mortality rate.

In 1914, 35 states reported a total of 73,829 cases with 2,969 deaths and maximum mortality of 13.04 and minimum of .3. The average was 3.7.

This shows that the mortality rate of the present epidemic has been about average. In fact, I believe that the mildness of the disease in a great many cases has been the cause of its spread and the chief difficulty with which our Board of Health has had to cope. There have been a few cases of extreme toxicity where death occurred in from 48 to 72 hours but fortunately they have been few in number.

The last point to be discussed that of prevention of spread of the disease will be only touched on briefly as it will be more thoroughly discussed by others. The main points to be emphasized are, the necessity of early diagnosis and careful isolation. It has been well established that the disease is carried by the secretions of the nose and throat and by purulent exudates and not by the scales, consequently if quarantine is to be effective, it must be put into effect during the time of the inflammatory processes in the nose and throat and continued until these mucous membranes have become normal or the discharging ears have cleared up regardless of the scaling. The period of quarantine varies in different states and cities. In Boston in South Department of City Hospital the cases are kept at least 50 days and no cases released who have a discharge from the nose or any abnormal condition of the throat. Out of 3,000 cases they had but 1.7% return cases infected by the patients going out. Pittsburg sets a maximum of 30 days. A great many cities including Omaha, keep the quarantine until the desquamation is finished. This latter is safe as the nose and throat have usually cleared up by the time desquamation has ceased.

In conclusion: The following points regarding the epidemiology of scarlet fever have been fairly well established.

1. The probable cause is the *B. Scarletinae* of Mallory & Medlar, the

streptococcus being secondary but responsible for the majority of complications and deaths.

2. Transmission is by contact in from 75% to 85% of cases. Milk being the cause occasionally.

3. Disease carried in purulent discharges and in exudates from nose and throat.

4. The spread of disease has seasonal variation being greatest in late winter and early spring months and least in mid-summer months.

5. The greatest number of cases found between ages 4 and 18.

6. Mortality rate averages 4% but shows marked variations in different epidemics.

COMPLICATIONS OF SCARLET FEVER.*

Newell Jones, M. D., Omaha.

Although Mallory's findings may prove to be the real cause of scarlet fever there still seems to be very little argument as to the cause of the various complications. These conditions are not peculiar to scarlet alone, but to any infection which is in any way associated with the streptococcus. While the tendency to one manifestation or another may be greater or less in scarlet than in other streptococcic infections, we also see the predominance of one complication greater than another and visa versa in the different scarlet epidemics and in different localities in the same epidemic. In our own experience in the recent Omaha epidemic there has been very little nephritis while other men have reported a much larger percentage of cases. As far as we can learn the number of cases of suppuration in the last epidemic was comparatively large. This has been true not only in Omaha but in many other places. In fact, the past winter has been noted for the number and severity of suppurative conditions, not only in scarlet but other infections as well.

While it may be somewhat tiresome, it seems best that we consider the complications individually as to frequency and severity. Since the condition of the throat in

scarlet corresponds very closely with the general severity of the disease the angina should not be considered a complication. A diphtheritic infection does at times complicate the throat condition but many cases of membrane are not of Klebs-Loeffler origin.

Adenitis which is classed as a complication by some authors is by others considered only a symptom. Adenitis is present in every case except the very mild. Unless it is severe enough to prolong the febrile period more than one week we believe it is within the normal glandular swellings in scarlet. Adenitis appearing after the fever has been normal for two or three days is a complication. If we accept this classification of adenitis, it is not as frequent as otitis media.

It is impossible to draw a conclusion from the literature as to the frequency of otitis because of the varied reports. In one epidemic in the New York Infant Asylum there were seventy-three cases of scarlet and not one case of otitis, while in another epidemic in the same institution twenty per cent showed otitis. When once established a scarletinal otitis must be dealt with as a serious condition. Bezold reports one hundred thirty-five cases as follows: "In thirty there was entire destruction of the membrana tympani; in fifty-nine the perforation comprised two-thirds or more of the membrane; in fifteen there was total loss of hearing on one side, and in six of the cases upon both sides; in seventy-seven of the cases the hearing distance for the low voices was less than twenty inches." May has collected statistics of 5,613 deaf mutes, of whom 532 owed their condition to otitis following scarlet.

In the report from the New York Infant Asylum referred to above, the epidemic in which no otitis cases occurred was in summer. As far as we could find, no other reports are as definite as this one, but from other institutions the records show that there is much more otitis in epidemics occurring in the winter than in those in the warmer months. We have been able to learn, however, that this does not apply to other complications. Cases of mastoiditis and meningitis seem to be in about direct proportion to the otitis cases. It is impossible to get

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anything like a reasonable idea of the frequency of those complications. Any case carrying a fever for which we cannot fully account should have the ears carefully examined until a positive or negative finding is established. Sinus infections must be kept constantly in mind.

So far we have been dealing with the conditions which arise as a result of direct extension from the primary point of infection. Let us turn now to those conditions which occur at points distant from the seat of infection and are, therefore, systemic or the result of carried infection. The weight of opinion now seems to be that in nearly all these cases there is a blood infection, but this is only positively demonstrated in a small number of cases. When the infection in the blood stream becomes severe enough to be demonstrated, the outlook is very grave; very few of the cases recovering.

A majority of all cases of scarlet have at some time during the disease a cardiac affection, at least a murmur can be heard in the majority of cases where a careful examination is made. The essayist must plead guilty to having overlooked most of these until very recently when this was called to his attention. Since then nearly every case has shown at least a slight murmur and in several where no circulatory disturbance was suspected quite a little damage had been done to the heart. A certain proportion undoubtedly are muscle affairs as a result of the high fever and toxæmia. Others are endocardial in which all the damage of valvular infection is manifest. Pericarditis seems to be quite rare except in the late septic cases when a pericarditis with effusion may occur.

Convulsions at the onset are not rare and usually indicate a severe infection. Convulsions later are a bad omen, meaning either a meningitis or uremia. Occasional cases of neuritis, hemiplegia, epilepsy and even mental deterioration have been seen that could be attributed directly to the scarlatinal infection.

Joint involvements as a rule are rather mild, usually a synovitis, which may at times suppurate and leave some permanent joint disability. This comes on either toward the

end of the first week and the beginning of the second or much later during convalescence.

Multiple suppurations are seen in every epidemic. There is no questioning where these may be. Of course, the neck is the most common point from direct extension. Abscesses have been seen in every conceivable location. With these are associated at times gangrene and in some cases extensive sloughing.

We have intentionally left the consideration of the most important complication to the last, namely, nephritis. Early in every severe case of scarlet there will be found some albumin with at times blood, casts and pus cells but rarely accompanied by edema. This clears up with the subsidence of the fever and has no relation to the true post-scarletinal nephritis which makes its appearance with very great regularity about the nineteenth to the twenty-first day of the disease. Often, however, it is not recognized until a few days later. A child may vomit, complain of headache or be drowsy a few days before the urine shows anything. At this time, however, there is always an increase in blood pressure which may be nearly double the normal. There is usually an increase in the non-protein nitrogen in the blood. The phenolsulphophthalein test has been somewhat disappointing at this stage as quite a proportion of cases have shown a good elimination of the dye up to the time of suppression of the urine. Treatment should be instituted early and not after the signs are so plain that anyone can see them. The albumin, blood, casts and pus cells in the urine which is scanty, or nearly suppressed, the uremia, convulsions and high temperature are so blazen that it seems unnecessary to say more about them.

There has been very little if anything new developed in the treatment of scarlet fever in the last few years. We are going back to much the same method of treatment that was used twenty and twenty-five years ago. We now have scientific reasons for what we do. Since practically all complications of scarlet fever are due to a streptococcic infection, anything we do toward lessening the

severity of the disease must be directed toward the particular strain of streptococci found in the scarlet cases. It seems to us that if a vaccine made from streptococci obtained from the throat of a scarlet fever case were used that it would be of very material value. Our results with such a vaccine in comparatively few cases, while not enough to draw conclusions, has encouraged us in its use. We have never before used it in sufficiently large dosage or repeated it at as short intervals as we should, but nevertheless we feel encouraged to continue its use. While we are dwelling on vaccine and serum therapy it may be well to consider the possibility of a serum made by using the same streptococci as the starting point. Of the streptococcic sera now on the market none as far as we know has been made from this strain.

There are a few routine procedures in scarlet which we will discuss first and consider later more specifically special conditions. In all cases free elimination is induced, first, by means of free catharsis either with castor oil or salines. Solution of citrate of magnesia is very satisfactory and most children take it very kindly. Second, by giving large amounts of water to drink. This may be given as plain water, carbonated water, lemonade, orangeade or well diluted grape juice. Third, by means of warm baths.

The next step is to thoroughly alkalinize the patient. For this we have found nothing as satisfactory or as easily given as potassium citrate. In the average case it takes from one to two drachms in twenty-four hours to accomplish this result. An ice bag or cold application is put on the throat at the outset. We shall not argue the question as to the ultimate good results of this, but it does relieve some of the discomfort if the behavior of the patients amount to anything.

We do not agree with the exclusive milk diet outlined by many authors and which is being used extensively. If a child or adult is given enough milk to keep up his needs, in nearly every case the nitrogen intake is too high and the kidneys are not spared as much as they should be. Give milk enough to meet the nitrogen needs, the balance of the diet should be made up of starchy

foods and fats. In this way the child gets more to eat and has a much better resistance and the kidneys are protected to the best of our ability.

Further than this our treatment is symptomatic or as conditions arise. When the membrane and swelling in the throat become severe, a thorough but careful cleansing will often lower the temperature and make quite a change in the general well being of the patient. Does irrigation of the throat increase the frequency of otitis? We do not know. Since we have shown earlier the wide variation of otitis in different epidemics it is hard to draw conclusions from the comparatively few cases each one of us sees.

If the lymphatics around the eustachian tubes are kept draining there is not the danger of otitis as when they become over-loaded. By keeping the throat reasonably clear we are helping lymphatic drainage more than when the throat and naso-pharynx are so full that the patient can hardly breathe. After cleaning the throat follow with an oily spray or drops or in some cases a ten per cent solution of argyrol.

If during an attack of scarlet a pain in the ear develops it will nearly always go on to suppuration, so that an early paracentesis is justifiable. After drainage is established we believe a dry gauze drainage preferable in most cases to irrigation, but no hard and fast rules can be adopted.

Heart conditions when arising are treated almost exclusively by means of rest. An ice bag over the precordium when not a serious discomfort is of benefit. Heart stimulants have very little place in treatment here. In joint involvements again our treatment depends mostly on rest. Guaiacol applications seem to give relief as do also heat or cold. Several cases of nephritis have been reported which were apparently due to the guaiacol, at least the evidence was strong enough to make us careful in its use. In the cases of synovitis, salicylates give relief but the dose must be large. When suppuration occurs of course it is needless to say early and free drainage must be secured.

When shortly before the end of the third week a scarlet patient shows any of the

symptoms mentioned above in connection with nephritis, they should be put on treatment at once. Should it be a false alarm, no harm has been done and in the other event much time has been saved. Hot packs seem to us the most effectual therapeutic measure we have at our disposal at the beginning of scarletinal nephritis. If our alkalization has been kept up there is very little medication that will be of material service. Should uremic symptoms become marked, bleeding is very effectual.

DISCUSSION.

Dr. M. L. Hildreth, Lyons.—When I was appointed by the secretary to open the discussion, and I saw the names of the gentlemen who were to read the papers, I became satisfied that the discussion would be perfunctory.

When I was a boy in New England, scarlet fever was a scourge, and the death rate was appalling. Here in Nebraska the death rate in my experience, has been almost nil. I will venture the death rate in all the cases I have treated has not been beyond one per cent, but we do not know why these epidemics of infectious diseases sometimes are mild and sometimes are severe. I have not as much faith in this new discovery as to the etiology as some have, and yet we recognize the streptococcus and it is the scapegoat in a good many cases. As to the real cause of scarlet fever I am not entirely satisfied yet.

Dr. McClanahan raises a question of isolation of the suspected cases. Now I understand under our state health rules we are advised to do that, and I always do it, and when we find any suspect it should be done, and they should be kept isolated until we are satisfied as to the diagnosis of scarlet fever. In these irregular cases we are often mistaken, but the better rule is to take the safe side and cause the cases to be isolated until these questions can be determined. We find the preliminary symptoms so nearly alike in scarlet fever and some other diseases, that we cannot always be sure of scarlet fever at first.

As to the treatment and management, quite often it is a case of not treating scarlet fever, but of treating the patient and watching the symptoms. I believe in keeping the throat clean. I consider cleansing with a solution of permanganate good treatment. The complications of nephritis in some epidemics is quite common. I had at one time in an epidemic of scarlet fever a dozen cases of severe nephritis. I believe the epidemic here in Omaha has been more severe than is general. There is no question in my mind that the disease has been scarlet fever, but out in the rural districts and small towns, we do not expect much trouble from scarlet fever as a rule.

Dr. A. E. Johann, Lincoln.—In Lincoln this year we have had fifty-seven cases of scarlet fever among the public school children. In no instance, with perhaps one exception, have there been second cases that we could trace in the schools, nor other cases in the school rooms after children have developed scarlet fever in that very school room. In my opinion school inspection is a very important factor. The statements that have been brought out here by Dr. Moore showing that perhaps only two per cent of the cases of scarlet fever could be traced to the source of infection, prove conclusively that it is necessary to detect early the child incubating the disease, and the only way that can be done is by rigid school inspection, which should be done under ordinary conditions by teachers trained to intelligently do this work.

The question of fumigation has not been mentioned at all in this symposium. Fumigation is certainly of little value in the prevention of the spread of scarlet fever in the school room. Daily supervision of the children is all important. Co-operation on the part of the public is necessary; if this co-operation is to be intelligent the public must be educated by the medical profession.

Dr. Wm. Berry, Omaha.—I have listened to these papers with a great deal of interest.

As regards the etiology, I think it is not only the streptococcus that is causing our scarlet fever, but it is some unknown organism in connection with the streptococcus. The agent which causes the greatest damage is the streptococcus. If we can get an antitoxin that will remedy or devitalize the virulency of this germ we have the key to the situation.

In regard to complications of severe adenitis, I want to mention first that with all the skill I could bring to bear on many of my cases, of twenty years ago, adenitis developed as quite a serious after complications. Middle ear trouble, mastoiditis, and even abscesses through the back of the neck followed as sequelae. I found that using a fairly strong solution of alfozone was very effective in many of these cases. It is perfectly harmless, and while some think it is of little value I have demonstrated it to be quite effective in many cases.

As regards kidney trouble which is one of our most serious complications, I think good nursing, gentle handling, plenty of fresh air and care of the diet is the keynote in relieving the situation.

Dr. Clyde Moore, Omaha.—In regard to the relationship between la grippe and scarlet fever I believe that a good many of us are inclined to doubt the diagnosis of la grippe in cases where two or three other members of the family had scarlet fever and one case, exposed to scarlet fever, developed la grippe. I would be inclined to think that such a case was an irregular case of scarlet fever and that statistics showing that fifty per cent of families had both scarlet fever and the grippe at the same time, would not bear careful scrutiny.

In regard to school inspection I quite agree that school inspection is undoubtedly an important adjunct in preventing the spread of scarlet fever.

Dr. C. F. Clark, Omaha.—In the late Omaha epidemic there was some difficulty in recognizing the milder cases. One case showed a little scaling of the palms of the hands. By close inquiry I could not find that the boy felt badly at all, but the six brothers and sisters were quarantined for a long time. In another instance a boy had chronic eczema and was sent home from school. I had great difficulty in getting him back in school. The doctor's diagnosis should have more weight than that of the school nurse.

In the epidemic this winter the lymphatics were swollen about the eighteenth day. As Dr. Jones brought out we should get albumin along with this condition, but in the majority of cases with the application of the ice bag and care the swelling would disappear without abscesses forming or without any further trouble with the kidneys.

No one knows why the disease in older patients was more fatal than usual. I lost one case nearly thirty years of age. I think this lady was sick only three days. It seemed as though the system was overpowered with the toxins.

Dr. H. B. Hamilton, Omaha.—Scarlet fever in typical form is very easy to diagnose, but there are always irregular cases in epidemics which are difficult to diagnose, in fact we cannot be absolutely sure the disease is scarlet fever until the appearance of the rash, and in the event of an atypical rash, not even then.

Referring to the quarantine, the long period of quarantine is really cruel. It is almost universally recognized that the scales are not infectious and the majority of the cases could be so managed that the long period of quarantine would not be necessary. I believe, too, that we would diminish the number of cases if we shortened the period of quarantine because people hesitate to report a case in which they suspect scarlet fever on account of the quarantine. I believe the time is not far off when we will shorten that period.

I have seen in the past few months extremely virulent types of scarlet fever in which the patient died within twenty-four to thirty-six hours, and in those cases the blood pressure seemed to be very low. It is well to use adrenalin in those cases to increase blood pressure.

What Shall Be Done With Our Indigent Tuberculous?*

S. R. Towne, M. D., Omaha.

In the control of tuberculosis, whether in the individual or in the community, no factor is of greater import than early diagnosis.

Chances of recovery are then much greater, and of conveying the disease to others, far less. The great hindrance is the waiting of the individual with slight symptoms, hardly noticed by himself or his friends, to take the initiative in coming to a physician. Many such cases may be found, provided only that we of the medical profession are alert. Dr. Kayserling of Berlin at the International Congress at London in 1907, said "half the new cases of tuberculosis we learned of in the last year, we searched out." This was done

- 1. By examination of all known to be subject to exposure to T. B.
- 2. By examination of those in delicate health from any cause.
- 3. By examination of all "hearsay cases" in a neighborhood, with tuberculosis in mind.

It was extremely interesting to observe Dr. Ritter of Chicago, make such an examination before the medical section of the T. B. conference at Indianapolis last October. These were his points as I recall them:

- 1. History of exposure. The father at home-tuberculous.
- 2. Boy of ten not gaining in weight, nor joining in play; lacking in initiative.
- 3. On removal of clothing, right shoulder not rising with the left on inspiration.
- 4. Superficial muscles about right shoulder slightly tense; firmer to the touch than the left.

Without percussion or auscultation, but from these constitutional symptoms alone, tuberculosis diagnosed as very probable.

It was Lawrason Brown of Saranac Lake, in twenty-five theses on diagnosis of tuberculosis, in "The Journal" of June, '15, who said: "The importance of physical signs has been over-emphasized." This is thesis number nine. Thesis number two declares "any patient with constitutional symptoms, no matter of what he complains, the possibility of tuberculosis must be kept constantly in mind." And yet he says, of course, in thesis number eighteen, "the detection of rales by auscultation of inspiration following cough is the most important procedure in the detection of physical signs of early pulmonary

*Read before the Nebraska State Medical Association, Omaha, May, 1916.

tuberculosis." Stephen A. Douglas warns against awaiting the classic symptom group, or physical signs, but look for malaise, loss of endurance, decline in weight, increase of nervousness, slight cough, which may show constitutionally clear evidence of T. B.

Believing that we can and should do far more for the indigent home in the removal of tuberculosis, by ourselves taking the initiative, I have dwelt upon this matter of diagnosis. Our dispensaries in Omaha are our leaders in this effort.

To secure to the indigent tuberculous the four essentials, namely: fresh air, proper food, rest and regime or management, in an attempt to restore to health, is a problem worthy our most painstaking consideration; one whose fulfillment will demand effort quite as untiring.

To find at any time in Omaha, fifty such cases of T. B., in every way poorly equipped for recovery, is an easy matter for our visiting nurses. Half this number of new cases have come to their notice, in the last four months, and about as many have been in weekly attendance at one, and probably at each of our dispensaries during this time. These agencies do good work. They can advise as to the air, the food and rest necessary, and how not to infect others. But neither agency can provide the food, nor the thorough and accurate management needed for the successful arrest of most cases of T. B. among the indigent; and certainly not the continued morale of hopefulness so essential. This and the esprit du corps can only be found in the equipped sanatorium. Leadership is the large half in the institution.

These same objections apply to care by the county, as now provided for all indigent. Rest? Yes and possibly fresh air, but hardly proper food and above all leadership. Conditions in Douglas county are not better.

Several states are establishing true sanatoria by counties, or districts, in a sparse population. Homesickness, from distance to state institution and from friends is avoided, and the prejudice against pauperism also. There is evidence of material enough in our midst to demand a first class county sanator-

ium. Without it, conditions seem endless and hence intolerable. This would mean:

1. Leadership.
2. The hearty support of the medical profession here that it may be in good repute and attractive enough to influence those in need.
3. A building for administration and simply constructed shacks none of them of the expensive type. As recently suggested by one of our number, Dr. Banister, hospital tents, if sufficiently ventilated would serve the purpose, temporarily at least. Thus can be provided the four essentials named: rest, food, air and regime. Whether other local sanatoria are needed in our state I am not certain.

During the first full year of our statistics, 579 deaths from T. B. were reported in the state. In 1907 there were 597. One-fourth of these were in Douglas county. Last year about 350 deaths were reported about half of them in this county. In a reply to Dr. Cutter from Dr. Robinson the superintendent at the Kearney sanatorium, 11 were given as under treatment from Douglas county out of 38—the total. In the four years, 103 cases and probably a few others have been at Kearney from Omaha. About one-fifth of our fatal cases in that time. Dr. Robinson well remarks: "After our profession can detect T. B. in its early stages, they have still to learn, that it can not well be controlled unless every hour of the patient's day and night is rigidly directed; not once a week for a few minutes, since half an hour of injudicious exercise may undo a month's gain." This sentence gives the key to the situation, and explains the value of the sanatorium. Nothing could better meet the needs in this community today than a county sanatorium properly conducted.

The Society for Improving the Condition of the Poor in New York City have proven what can be done. Only T. B. families were admitted to the home tenement; and while there, were under painstaking supervision; with the result that a large proportion of the cases recovered. The family not only went out earning on the average twice the wage they had when entering, but they had been

taught how to use the income for better living in many directions. Such an experience makes the great problem far less hopeless. Is it not possible for the medical men of this county or this state to accomplish definite results along the line of painstaking effort here outlined?

DISCUSSION.

Dr. C. L. Mullins, Broken Bow.—I think it is probably true of syphilis that we recognize only a small percentage of the cases that we see. I think perhaps it would be well for the physician who practices to have every one under suspicion. I think we have not paid attention enough to the milder cases of infection. If we inquire into the history of such cases we would find periods of ups and downs in their physical health that give very strong evidence of infection in the early period of their lives. Some years ago my wife and I were in northern Minnesota and we had an opportunity to visit the Minnesota State Tuberculosis hospital. We were shown through the main building and the smaller buildings. We were just then securing an appropriation from the legislature to make a start towards providing the proper place to take the poor of our own state. After returning home I visited our sanatorium at Kearney. The building is probably as well suited to the purpose as one built especially. We are now making a constant effort to take care of these tuberculous, but there is a vast amount of educating that ought to be done among the people themselves, and this institution is going to be of value in an educational way. If we can get the people enthused with the idea of sanitarium treatment, they might help us get through the next legislature a bill providing for an appropriation for additional buildings and proper facilities for giving proper sanitarium treatment to the indigent tuberculous of our state.

Dr. H. J. Lehnhoff, Lincoln.—I wish to call the chairman's attention to the fact that we have a visitor with us who, so far as I can learn is highly proficient in the treatment and the care of the type of cases that we now have under discussion. I refer to Dr. Kirschner, of Monrovia, California, whom I will have the chairman call upon before this discussion is complete. I feel that I should give him all of my time, but I wish to mention three or four points. The diagnosis of cases which have tuberculosis I hope will be brought to some degree of certainty by the so-called annual examination day. Last year was the first year that Lincoln tried to use that day, and of course the first time you try it does not get very far. I do not know how many patients were examined by the different physicians in Lincoln, but there were a number, I should say between fifty and seventy-five. I think that one of the things that initiated this examination day was the fact that physicians are looking for cancer. They will find a great deal more tuberculosis than they will cancer, and I am inclined to think they will do more

good. I think we have to give a lot of men credit for the same idea.

The next point that I would bring up is that we should determine what particular cases are active. Practically all of us have tuberculosis, all of us that are past ten years of age. It is almost impossible to take an X-ray photograph of a lung and not find either active or healed lesions of tuberculosis, so we all have it, and one of the big points to determine in examining our cases is whether or not in this particular instance the disease is active. I feel very grateful to Dr. Towne for bringing up the idea that we must not put too much weight upon physical signs; symptoms are first to be considered and physical signs afterward. There are some of the simplest findings, from the symptomatic side, which when present we must credit to a tubercular condition unless we can absolutely prove that those few symptoms are due to some other condition. For instance, if a patient, particularly a female, between the ages of twenty and thirty, comes to your office with a slight loss of weight, with that condition to which you might apply the general term "lank," and with one or two other things, either an increase in temperature or increase in pulse, if you find these conditions on consecutive days I think you must call that case tuberculous unless you can prove it something else.

I am strongly in favor of the sanitarium treatment for tuberculosis. You must have these people under your control all the time, following one continuous line of treatment until they are able to stand a change. These cases must be reached early by some sort of medical-social activity. I was very much pleased two years ago to learn what Dr. Richard Cabot of Boston and his associates were doing with their so-called medical-social work. His helpers go out and meet people who are incompetent, a number of them incapacitated, and succeed in getting them to do certain lines of work that they can follow without physical degeneration. The most difficult class of cases to reach are the tuberculosis cases. The tuberculous case comes so near needing absolute rest, that it is very difficult, indeed, to place the patient where he can earn even a partial living.

Dr. Kirschner, Monrovia, California.—I chanced to be going through Omaha today and had a few hours between trains, and learning that the State Medical Association was in session I dropped in. I was very much interested in Dr. Towne's paper. What I have to say will be the result of having taken the cure myself.

"What shall we do with the poor tuberculous?" By all means do not send them out to California as has been done in the past. They tell a story of an elderly man who acquired a fortune in the east and went to California to live. The first time he wrote home he told them he felt five years younger, the second time, ten years younger, and in each letter he felt younger. Finally they did not hear

from him for six months and upon investigation they learned that he had died of cholera infantum. The county hospitals of California are crowded to the doors with the poor from the east. My advice to you is that your patients are better off right here than they are in California, and unless they have at least two or three thousand dollars to take the cure and to take care of themselves for the first year or two after the disease is arrested they should not go to California. That is the big mistake a few of them make. They come out with a few hundred dollars and they think that when they are better they can go to work. You cannot get work if you go around and promise to labor for nearly nothing, so unless your patients have money enough to take care of themselves they should not go to California. I believe from the results I have seen in the neighboring state of Iowa that you can get relief right here. You should have a county sanitarium where these cases can be taken care of, and then by all means every member of your State Association should give his support in taking care of the state institution. I know what the first few years are in starting such an institution, and how hard it is to educate the practitioner and the patient to use the sanitarium properly. Why are many cases not sent early by the general practitioner? Simply because he does not examine the patient properly. I have seen many patients who told me that the practitioner had not asked them to remove all their clothing when he was making the examination. The next thing after the clothing is removed is not to use your stethoscope, but you must use inspection and palpation. I was recently examined by an insurance examiner, and when he first came to examine my chest he took his stethoscope. He did not have me breathe several times and note whether there was anything lacking in my chest; the primary thing was to hurry the examination through by starting in with the stethoscope. An important matter in making a diagnosis is the use of the thermometer. You know the temperature should be taken every two hours for the first few weeks, maybe the first month you have that patient, especially from twelve o'clock on the temperature should be taken every few hours.

I know that it is very discouraging to work with a tuberculosis patient for six months, or a year, or eighteen months, or two years, or even three years. We all get discouraged, but do not think that if you cannot cure them here with rest and proper diet and fresh air and all that, that they can be cured in California; unless they have plenty of money to enter a sanitarium and to take good care of themselves.

Many cases when they first come under your care do not have temperature. I believe if the patient has lost a great deal of weight he should be put at absolute rest. You have to explain things to him. It takes a lot of patience on the part of the physician, and I start in and tell the patient that tuberculosis is like a large carbuncle in the lung; they

will have ups and downs; they will have good days and bad days. A point in the lung is going to break down and you are going to have more temperature at that time, you are going to feel bad for maybe ten days or two weeks, and then you will have another period of a few weeks of illness, then be better. A good many patients are told to go to California; that if they go out there for a few months in the winter time they can come home again. This is a mistake. Injudicious exercise at times may spoil what you have been attempting to do.

I want to emphasize the taking of the history, as all men are now doing with any case that comes under your care, especially being careful in stripping the patient and taking plenty of time in a quiet room. If you are busy when a patient comes to you and you want to make a physical examination, put him off for a day or two and tell him you want to make the examination when you have plenty of time, and then instruct the patient how to take his temperature and keep a chart. The only advantage I can see in California is that people who are middle aged and have money can go there and live out of doors the year around. I am not talking as a pessimist, I am only talking from what experience I have had in dealing with tuberculosis. One cannot be a pessimist when treating tuberculosis. Never give up for one minute, you must always keep up your enthusiasm with the patient.

Dr. L. S. B. Robinson, Kearney—All my thunder has been stolen, but I want to say just a word about Dr. Towne's question: "What shall we do with the poor tuberculous?" He hit the nail on the head—pick out the indigent consumptive by the aid of the visiting nurse. I hope that the visiting nurse's work will be extended to cover the entire state, and that it will not be long before this can be done. I agree very heartily with practically all that has been said. I take exception to one thing that Dr. Kirschner said, and that is I always insist when making a diagnosis that the temperature be taken every hour. I would like to emphasize the point he made so well that it is quite necessary for the patient to write down the temperature.

It has been advocated that in order to make a diagnosis of early tuberculosis the patient should be under control during the week of observation. This is a lovely idea, but if that patient has only a small rise in temperature, putting him recumbent for that week may abate the little temperature that you find and defeat the object of the diagnostic observation. I would rather have a patient go on in his customary mode of life for a week. If the stethoscope is used less and the thermometer and common sense more, fewer diagnostic mistakes will be made. I have already been quoted in my ideas about regimen, and they have been very nicely backed up by others.

Dr. Towne spoke about hospital tents. If you cannot get a good sanitarium here in Douglas county, a good start can be made with tents, but please do not take a big circus tent. Four patients in one

tent, under one cover, are plenty, and you can get along a great deal better and the patients will go there more readily if they are scattered around in smaller tents than if you try to herd them into a big affair.

Statistics bring in a wide field for discussion. I looked over the state mortality record for the first six months of last year. This is the latest report I had and I found that the whole state had reported 695 deaths in those six months from pneumonia and 205 were reported from tuberculosis. Undoubtedly the 205 deaths from tuberculosis should be increased from the 695 reported as pneumonia.

What are we going to do with the indigent consumptives? Send them to Kearney, but do not send them until I admit them because we have not room. But let me have, please, the applications for all of your cases that by any possibility could be persuaded to go to the sanitarium and that may help to provide adequate means for caring for them. When we go before the legislature next year and ask for an appropriation for the sanitarium at Kearney, the legislators will say that we have plenty of room for the patients now there and that there is no use spending more money for buildings and equipment. If we can show them the list of applicants whom we cannot admit on account of being overcrowded, we may be able to get the necessary support.

Dr. S. R. Towne, Omaha.—I was not aware that I had two sanitarium men before me when I read my paper.

I would like to ask the practitioner in the country, in the small towns of our state, if he thinks medical men dodge tuberculosis. I had a friend, a nice old unmarried lady, who died in Philadelphia a year or two ago at the age of eighty-four. The physicians signed her death certificate "tuberculosis." "Why," her sister-in-law said, "you mean Aunt Bess had tuberculosis?" "Why, certainly she had tuberculosis for years, didn't you know it?" "Why no, I never thought of such a thing." "Why, she had two spots on her lungs, that had been infected for a good many years."

As one gentleman said, this is getting to be a personal matter. A very dear friend of mine, thirty-eight years of age, lives in Salt Lake City. I saw him in July. When he got home to Salt Lake, his physician told him there were bacteria in his sputum. Now I should have known that, but I did not know it until November. Two letters that came from him made me suspicious of his condition, but said nothing of his infection. Under the care of his physician, he was asking me, "should he run for the car, should he walk a mile or two?" He did not feel very strong. That physician was not telling that boy with tuberculosis, working in an office, "not to do anything that he did not have to do," if he must work, "not to do anything he could avoid." He did not even tell him not to run for a car. This is the reason I keep hammering away at the family physician as I have for fifteen years; to try to impress the idea that he must

search out these cases. The physician must go hunting; it is his duty to go hunting; he is no longer simply a practitioner, he is a sociologist.

I feel that we physicians in this state are not doing our duty in not being careful in our diagnosis; in not being careful in making our death reports. I think we are injuring our own standing, our own character and I do not know but our souls for eternity, in not giving closer attention to tuberculosis, because it is such a menace to the community. Education! Education! Education.

A Revised Classification of Nervous Diseases of Syphilitic Origin. *

F. E. Coulter, M. D., Omaha.

For centuries past and until the present, there have existed three diseases that have been the scourge of mankind, viz: Alcoholism, Tuberculosis and Syphilis. Tuberculosis and alcoholism have been receiving popular organized attention for a number of years in the more recent period, and with marked effect, but syphilis has been allowed to hold its sway almost undisturbed by all peoples and nations, except as influenced by the medical profession. It is high time syphilis received the same attention as tuberculosis, alcoholism or cancer.

Of all the subjects in the field of medicine claiming attention and demanding research, syphilis is one of the most fruitful, and, we might remark, one of the most interesting, not only because of its great scope, but also because of its various and varied manifestations. The importance of syphilis and its relation to nervous diseases may be realized when one stops to consider it has been estimated that out of every seven patients infected, one at least develops some syphilitic affection of the nervous system.

In the history of this disease there has occurred especially in the more recent years, a number of epochs characterized by discoveries of great importance, and in these epoch making periods the present generation of medical men have had the honor to participate. One of these most important epoch making periods was the discovery of the *Spirochaeta pallida* by Shaudinn, who was not a medical man at all, but a zoologist. The result of his discovery, however, was not published until a later period, and then in

*Read before the Nebraska State Medical Association, Omaha, May, 1916.

conjunction with those of Hoffman. The discoveries of Shaudinn and Hoffmann were soon confirmed by Metchnikoff and later by many others, and these alone of all the alleged discoveries of the causative factor of syphilis, have successfully stood every test. Other discoveries of much importance have been made by Wassermann, Nonne, Neisser, Bruck, Noguchi and others, in giving us methods of great accuracy and importance along the line of diagnosis. As it is well understood, the blood and cerebro-spinal fluid are the particular substances usually investigated and while they do not always support the clinical evidence, yet in a large percentage of cases are confirmatory and should never be neglected if one entertains a reasonable doubt as to the presence of the disease. Any of these various methods are accessible. However, too much importance should not be given to the laboratory findings, should they prove to be in opposition to the clinical.

As Weisenburg has recently well stated, "The clinician should regard the Wassermann test as a symptom which helps in the diagnosis, but not as a principal factor in the case." If two or more laboratory tests are used and it is found that one supports the other they should of course, be given relative importance. A negative Wassermann should never be taken as positively excluding syphilis. Keyes recently remarked that at the tenth to twelfth week of syphilis the Wassermann is practically positive in 100 per cent, but before or after that period it is not always positive.

To Fournier is given the credit of having invented the term para-syphilis or para-syphilitic, designated to describe a condition that required a previous syphilis for its development, but which was not in itself necessarily an active manifestation of the syphilitic poison. His reason for the coining of this term was based solely upon therapeutic measures, i. e., upon the failure of anti-syphilitic remedies to relieve these so-called para-syphilitic conditions. Accepting this view we can readily understand why less than a quarter of a century ago it was taught that syphilis did not in these conditions invade

the nervous system proper, but that it involved the sustaining structures, the neuroglia, connective tissue, blood vessels, etc., that the nerve cells and fibre proper escaped, and only as these might be secondarily involved was the nervous system per se invaded.

Our improved methods of investigation, especially those of histology, pathology and bacteriology have had much to do with our recently modified views of syphilis and nervous diseases. That syphilis was responsible for various forms of meningitis, myelitis, cerebritis, arteriitis, endarteriitis, gummatosis, etc., has been conceded for many years past, but more recently neurologists began to suspect that syphilis had some more active relation with those so-called degenerative nervous diseases, known as para-syphilitic; in other words that cerebro-spinal syphilis, tabes, paresis, taboparesis and certain forms of progressive muscular atrophy, as well as certain forms of primary optic atrophy, should be reinvestigated and it is along these lines that our views have been recently modified to the greatest extent, and as these investigations progressed, there have appeared a number of very good reasons why our former conception of this class of syphilitic diseases should be modified.

In 1875 Fournier, the author just mentioned, is credited with having first asserted that tabes was the result of syphilis, and this statement created a sharp discussion and division of opinion between the leading neurologists of the time. It is needless to say that this contention has been raging until recent years, one side supporting the affirmative, the other the negative, each supported by an abundance of statistical data. The Wassermann and other reactions, however, have served to assist in deciding the question in favor of the original position taken by Fournier, such tests demonstrating syphilis positive in from 60 to 70 per cent in all cases, and an even greater per cent when the disease was active.

The question of the relation of syphilis to general paresis was first discussed by Es-march and Jessen in 1857, and from then on for a number of years statistics were sought to prove or disprove the relationship. How-

ever, like in the instance of tabes, the aid of the Wassermann and other reactions was again sought and they proved a positive syphilis in nearly 100 per cent of all cases. What has been found true in the two diseases just mentioned has also been found true in tabe-paresis, primary optic atrophy and cerebro-spinal syphilis. In short, as mentioned by Spiller and others, an examination of the blood and cerebro-spinal fluid in tabes, paresis and cerebro-spinal syphilis give the same result, except that they are quantitative and not qualitative differences.

The connecting link in this chain of evidence was forged by Noguchi and Moore when they discovered the *Spirochaeta pallida* in cases of tabes and paresis, and their findings have been verified by many other investigators. We can thus well understand why the entire list of parasymphilitic diseases is again brought forward for serious consideration. Just at this time there seem to be two different views taken of the situation as it now stands. First, it has been asserted by Nonne, H. J. Nichols and others, that there may exist especial and different strains of the *Spirochaeta* that produce the different forms of syphilitic nervous diseases just mentioned. As an example, one particular strain of the *Spirochaeta* may have a predilection for a special portion of the nervous system, just as lead has for certain elements in the motor tract, and a different strain may possess a predilection for other tissues of the body or nervous system in like manner. There is much to be said, both pro and con, on this phase of the subject, but time will not permit us to record the arguments. Suffice it to say, the affirmative is advocated by many worthy adherents. A second solution of the question is presented by Head and Fearnside and their views are supported by a number of cases in illustration, together with laboratory findings. The stupendous work of Head and Fearnside had been carried on in conjunction with that of McIntosh and Fildes, who make a separate report as to the laboratory findings of the entire list of clinical cases used by Head and Fearnside. The complete report of these four investigators covers a period of over three

years, and embraces in all more than three hundred cases. It is well worth perusal by any one interested in the subject of syphilis and nervous diseases. McIntosh and Fildes, besides the laboratory work just mentioned, compare the lesions of active syphilis with those of so called para-syphilis, and discuss the evidence in favor of the identity of the two conditions. It will be useless in this short resume to give in detail their full report, so we mention only their conclusions, as follow: "The parasymphilitic diseases are due to an exacerbation of *spirochaeta pallida* about nerve elements which are in a state of hypersusceptibility. This state is induced as a reaction to an intoxication occurring in the secondary period, and the spirochaetes taking part in the exacerbation are remnants of those which produced the original intoxication.

"The path of invasion of the central nervous system may be two fold. Firstly, the spirochaetes may reach the nerve elements by the blood-stream, as a part of the general dissemination of the second period; or, secondly they may reach these structures during the same period by direct spread up the perineural lymphatics. The interstitial nervous lesions of tertiary syphilis are due to a similar process affecting these tissues only." (Brain, Sept. '14, p. 184).

Under the title, "Clinical Aspects of Syphilis of the Nervous System," (in the Journal already mentioned), Head & Fearnside remark: "The difference between chronic syphilis of the nervous system and "para-syphilis" is not a difference of morbid process but of anatomical situation and chemical permeability; for the deeper the virus lies in the substance of the central nervous system, the less will it be reached by treatment which readily acts on the same process affecting vessels and meninges. But although "parasymphilis" of the nervous system is at bottom simply another manifestation of syphilitic spirochaetosis, we believe the conditions, classed under this head, require a previous sensitization of some part or parts of the central nervous system. This antecedent preparation of the tissues is also re-

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Nebraska medical men must be ready and prompt to champion the bill which is being prepared for presentation to the coming legislature looking toward a scientifically organized state health department. The Fox report naturally will form the basis of the bill and the committee of the State Medical Association should endeavor to so word the proposed measure that an effective health organization may at once be launched. All medical men of whatever school should see the justice of supporting any measure calculated to improve public health conditions. To combat epidemics effectively is a small part of the value of the organization; to aid in general health education of the people is the main consideration.

The recent report of Rosenow of the Mayo Foundation, Towne of Boston and Wheeler of New York that a polymorphous streptococcus probably gaining entrance to the body via the tonsils is a causative factor of poliomyelitis, is significant. Those who have followed the remarkable work of Rosenow for the past few years recognize in him a remarkable technician and a thorough bacteriologist. This report will receive more than passing attention and corroborative evidence will at once be sought.

The Treatment of Neurasthenia.

Recent observations dealing with the treatment of this bete noire of physicians, point definitely to the fact that these cases do not need the rest cure. Weir Mitchell in his "Fat and Blood" evidently did not have in mind the typical neurasthenic. Rest, physical rest, is now believed to have done these patients more harm than good. In fact, they are tired to death resting. Many of them who travel from physician to physician go through a regular routine of rest, exercise, physical cures of many varieties, diet cures, eliminating cures, baths, etc. Physical examination of these cases show normal cardiac, pulmonary, renal and digestive functions. The nerve reflexes in most cases are practically normal. Neurasthenia is a mental disorder and has little to do with purely muscle or organ fatigue. Present-day results depend entirely upon the re-education of the patient, and a physician who would be successful in handling this condition must at the outset make up his mind to spend a large amount of time with the patient and exercise the forbearance necessary with a wayward child. The patient should have some occupation, a task occupying not less than one-fourth of the day. The patient must then by visits with the physician be returned to the track of normal thought and normal life. Self-control is the main desideratum. As a means of teaching this self-control the patients are introduced to the study of psychology particularly those phases dealing with consciousness, mental concepts, associated ideas obtained through sight, touch, taste, etc. They are asked to analyze themselves and re-organize themselves in the light of newly acquired ideas. The ability to concentrate will come as rapidly as the patient acquires a clear understanding of his own processes of thought.

Recent statistics show that after three years more than one-half of these patients are absolutely cured with an additional one-third greatly improved. Less than five per cent show no improvement.

Scientific Investigation Into the Causes of Alcoholic Inebriety.

A Research Foundation has recently been organized at Hartford, Conn., for the purpose of making an exact scientific study of this and kindred questions. This is the first scientific effort to determine the underlying conditions that initiate the craving for alcohol, opium, or other habit forming products. Science has shown that these conditions are governed by exact physical and psychical laws, which if known, would indicate the proper means of relief and practical methods of prevention. Scientific study has demonstrated that no agent in common use is so destructive to human life, and productive of disease as alcohol, but the vast range of causes beyond this are unknown. This research hospital where the victims of uncontrollable appetites may be examined, studied, grouped, tabulated and collated, for discovering the laws that will explain their pernicious cravings, is a clearing house for scientific counsel and advice. The founders of the hospital have selected as its superintendent Dr. Thomas D. Crothers whose forty years of extensive and intensive clinical study supplemented by a staff of the best available research workers, constitute a strong directing force and encourage our hopes for definite knowledge in the cure and prevention of this destructive force against human efficiency.

NOTES.

Dr. Stewart of Stratton in contemplating the erection of a \$10,000 hospital.

Dr. Bert Morrow of Seward spent a few days in Plattsmouth recently.

Dr. F. E. Coulter of Omaha has returned from a trip to California.

Dr. Wm. Edmonds of Nebraska City and Dr. Haradin of Peru have returned from a motor trip to the Ozarks.

Dr. and Mrs. C. A. Hull of Omaha are spending a few weeks in New York City.

Dr. H. S. Summers of West Point has gone to Elgin, Utah, where he is interested in a tract of fruit land.

Dr. J. P. Feese of Wymore has returned from Chicago where he was attending a medical conference.

Dr. O. Grothan of St. Paul will reconstruct his present residence into a modern hospital.

The following physicians were Omaha visitors during the Ak-Sar-Ben festivities: Dr. Lemen of Denver, guest of Dr. A. F. Jonas; Dr. W. C. Campbell of Creighton and Dr. E. L. Hustead of Scribner.

Dr. L. Morrow who has been located in Verdigre for the last three months will remove to Brunswick.

Dr. H. M. Fitzgibbon of Omaha is spending a month in New York. He will attend the meeting of the American Congress of Surgeons in Philadelphia.

The Northwestern Nebraska Medical Association will hold its semi-annual meeting in Ainsworth the third Tuesday in November. There will be a full day's session of papers and addresses followed by a banquet in the evening. Dr. H. Gifford of Omaha and Dr. Hargens of Hot Springs are on the program for addresses.

The following appointments have been made in the laboratories of the University of Nebraska College of Medicine, Omaha; H. E. Eggers, B. Sc., M. A. (Wisconsin), M. D. (Rush), professor of pathology and bacteriology; John T. Myers, A. B. (Washburn), M. S. (Kansas), instructor in bacteriology; Amos W. Peters, A. M., Ph. D. (Harvard), assistant professor of biochemistry.

In anticipation of a possible epidemic of poliomyelitis next summer, the Illinois State Board of Health has arranged for a number of conferences on the subject at different points in the state during the winter months.

Dr. I. D. Jones of Murdock, Nebraska, age fifty-two years, died at his home October 10, 1916. Dr. Jones had been an invalid for some months. Dr. Jones graduated from the Omaha Medical College in 1895. After completing an internship in Bellevue Hospital, New York, he did post graduate work in Vienna and Berlin. His early practice was in South Bend, Nebraska, and later at Murdock. He leaves a widow and two daughters.

Dr. Albert Frankel, who died in Berlin on July 6, was born in 1848. He was one of the earliest pupils of von Leyden, and was a nephew of the famous Traube. For many years he was director of the medical section of the Urban Hospital in Berlin, where he was a prominent physician and enjoyed an extensive consultant practice. His chief distinction is due to his discovery of the pneumococcus as the etiologic agent of lobar pneumonia.

Recent deaths among physicians from poliomyelitis are those of Dr. Earl C. Peck of Newton, Massachusetts and Dr. Arthur L. Hunt, Health Inspector of the District of Columbia, of Washington, D. C.

It is estimated by the United States Public Health Service that since July 1, there have been 28,262

cases of poliomyelitis in the United States. Of this number the great majority have occurred in New York City.

On Sept. 20, 1916, thirty odd physicians from the mid-west met and played a round of golf at the Happy Hollow Club in Omaha. This was followed by a golfer's dinner at which time the "Mid-west Physician's Golf Club," was organized and a meeting planned for 1917, the date and place to be decided later. Dr. A. P. Overgaard, Omaha, was elected President, Dr. C. O. Rich, Omaha, was elected Secretary and Treasurer. The event proved to be a big success. A trophy was awarded for the low net score to Dr. E. T. Manning, Omaha; the handicap trophy was awarded to Dr. J. E. Pulver, Omaha. The best nine holes trophy went to Dr. J. Woodward, Lincoln, while the blind bogey (award by the W. G. Cleveland Drug Co.) went to Dr. C. O. Rich on a draw with Dr. T. H. Waters, Norfolk.

Harvey Society Lectures.

The twelfth course of lectures given by the Harvey Society under the patronage of the New York Academy of Medicine, was opened Saturday evening, October 14th, with a lecture by Professor J. S. Haldane, of Oxford University, on the New Physiology. Other lectures in the courses are: November 4th, Dr. F. M. Allen, of the Rockefeller Institute, the Role of Fat in Diabetes; November 28th, Dr. Paul A. Lewis, of the Henry Phipps Institute for Tuberculosis, Chemotherapy in Tuberculosis; December 16th, Professor Henry H. Donaldson, of the Wistar Institute of Anatomy and Biology, Growth Changes in the Mammalian Nervous System; January 13th, Professor E. V. McCollum, of the University of Wisconsin, The Supplementary Dietary Relationships Among Our National Foodstuffs; February 3d, Professor J. W. Jobling, of Vanderbilt University, The Influence of Non-specific Substances on Infections; February 24th, Professor John R. Murlin, of Cornell University, The Metabolism of Mother and Offspring Before and After Parturition; March 17th, Professor Francis W. Peabody, of Harvard University, Cardiac Dyspnea; April 7th, Professor W. H. Howell, of Johns Hopkins University, The Coagulation of the Blood.

SOCIETY REPORTS.

Fifth District Meeting.

The twelfth annual meeting of the Fifth Councilor District of the Nebraska State Medical Association was held Tuesday afternoon, October 10, 1916, at the Commercial Club Rooms, Fremont, Nebraska. A banquet was given at the Hotel Terry at which over sixty physicians and their wives were present. Altogether it was the best district so-

ciety meeting that has ever been held. The following program was presented:

1. Jacksonian Epilepsy, Dr. Louis Burstein, Blair. Discussion opened by Dr. G. W. Bartlett, Scribner, and Dr. Morris Neilsen, Blair.

2. A Few Practical Points Regarding Infection of the Superior Cervical Glands, Dr. H. B. Lemere, Omaha. Discussion opened by Dr. P. R. Howard, North Bend, and Dr. M. T. Zellers, Hooper.

3. Gastro-Enteric Disease of Children, Dr. G. A. Langstaff, Blair. Discussion opened by Dr. R. J. Murdoch, Blair, and Dr. M. Woods, Tekamah.

4. Beginning Tuberculosis, Dr. Grant Reeder, Fremont. Discussion opened by Dr. R. A. Davies, Arlington, and Dr. A. E. Hoff, North Bend.

5. Nitrous Oxide and Oxygen in Obstetrics, Dr. H. N. Morrow, Fremont. Discussion opened by Dr. A. D. Nesbit, Tekamah, and Dr. R. T. Van Metre, Fremont.

6. Novocaine in Medicine and Surgery, Dr. H. A. Johnson, Tekamah. Discussion opened by Dr. G. H. Rathburn, Fremont, and Dr. E. R. Stewart, Blair.

7. Some new Conceptions of Syphilis, Dr. A. Westervelt, Craig. Discussion opened by Dr. Geo. Haslam, Fremont, and Dr. Cameron, Herman.

6:00 p. m., banquet. Toastmaster, Dr. A. C. Stokes, Omaha.

Councilor, Dr. R. C. Byers, Nickerson.

Buffalo County Society.

Dr. J. W. Laughlin of Elmcreek has applied for membership in the Buffalo County Society. This makes a total of 21 out of the 28 doctors in the county who belong.

The regular meeting was held on Thursday evening the 4th of October at the Presbyterian church in Gibbon. Dinner was served by the ladies of the church promptly at seven. The scientific part of the program consisted of a paper by Dr. J. W. Miller of Gibbon on "Biological Therapeutics." This was followed by a general discussion.

Officers elected for the year 1917:

L. M. Stearns, Kearney.....President
C. K. Gibbons, Kearney.....Secretary and Treasurer
L. M. Stearns.....Delegate to State Society
Charles Lucas, Shelton.....Alternate

The next regular meeting will be held in the Commercial Club rooms at Kearney on the first Thursday in December.

L. M. Stearns, Secretary.

Medical Society of Cedar, Dakota, Dixon, Thurston and Wayne Counties.

The semi-annual meeting of the Cedar-Dakota-Dixon, Thurston-Wayne County Medical Society was

held at Wayne at 8 p. m., October 9th. Dr. M. H. Evans of Emerson, president of the society, presided in his usual agreeable manner. In addition to the regular membership there were visitors from Sioux City, Omaha and the adjoining counties making a total of fifty-two in attendance. Papers were read on the subjects of Pertussis, Extra-Uterine Pregnancy, Gonorrhea and Otitis Media. Each paper was well received and elicited an interesting discussion. The good wives of our Wayne members spared no effort in entertaining the visiting ladies during the evening. After the scientific and business session a banquet was served followed by a program of toasts.

Attorney L. A. Keplenger of Wayne acted as toastmaster and in a very clever and witty manner introduced Dr. John Buis of Pender; Dr. E. J. Fleetwood of Wakefield, Dr. J. J. Williams of Wayne, and Rev. W. L. Gaston of Wayne, each of whom in his turn creditably handled the subject to which he had been assigned. Rev. Gaston responded to the toast, "The Doctor," and in an interesting manner presented many of the different phases and activities of the doctor's life.

The society wishes through these columns to express its appreciation of the efforts the visitors put forth to attend our meeting and assist us in making it a success. The next meeting will be held at Emerson in May, 1917, the date of which will be announced through these columns.

F. G. Dewey, M. D., Secy.

Saunders County Medical Society.

The October meeting of the Saunders County Medical Society convened in Wahoo, Nebraska, Thursday evening, October 12th, at 8 p. m., Dr. E. O. Weber, presiding in the absence of Dr. Kaspar, president.

Dr. Royal Scudder of Malmo was elected to membership.

Election of officers resulted as follows:
President.....Dr. F. W. McCaw, Colon
Vice-President.....Dr. Frank Tornholm, Wahoo
Secretary.....Dr. Mary A. Quincy, Ashland
Treasurer.....Dr. A. S. von Mansfelde. Ashland
Delegate to Nebraska State Medical Association
Dr. Frank Tornholm, Wahoo
Alternate Delegate.....Dr. J. G. Smith, Wahoo
Censor for three years.....Dr. F. E. Way, Wahoo

The following motion was carried that Section I of Chapter III, By-Laws, be amended to read as follows: The officers shall be elected at the October meeting and shall assume office January 1st following. Nominations shall be made by informal ballot and all elections shall be by ballot. The vote of a majority of all the members present shall be necessary for election.

The chairman, Dr. E. O. Weber, read a letter received from the Dean of the Medical Department of the University of Nebraska in regard to the advisability of creating Chairs of Homeopathy and Eclectic Medicine in that institution, and requested an expression thereon from the Society. After a thorough

discussion the Society went on record to the effect that the society deplores any additional chairs to be added to the curriculum, which could only serve to add expenses, to create discord and to assist in the perpetuation of medical cults for the existence of which there is no justification.

Mary A. Quincy, M. D., Secretary.

Omaha Roentgen Ray Society.

The Omaha Roentgen Ray Society will hold a general meeting in the City National Bank Building on Tuesday evening, Dec. 5, 1916, at 7:30 p. m.

Symposium on Uterine Hemorrhage.

Anatomy and Pathology, by Dr. Palmer Findley, Omaha.

The Roentgen Ray in Treatment of Uterine Cancer, by Dr. E. W. Rowe, Lincoln.

The Roentgen Ray in Treatment of Non-Malignant Conditions, Dr. C. H. Ballard, Omaha.

Every member of the Nebraska State Medical Association is invited to participate in the discussion.

A. F. Tyler, Pres.
C. H. Ballard, Sec.

Clinical Congress of Surgeons.

The Clinical Congress of Surgeons of North America held its seventh annual session in Philadelphia the week beginning October 23. The program consisted of clinics which followed stated programs posted a day in advance. More than thirty hospitals cooperated in offering clinics. The reports from the Nebraska delegation indicate a splendid program of clinics. Papers were delivered at the evening sessions with ample opportunities for discussion. At the University of Pennsylvania demonstrations of research work in blood transfusion and bone transplants were shown.

The meeting of the American College of Surgeons was held Friday, October 27th. Dr. Charles Mayo, the retiring president, expressed the desire and belief that all members of the Clinical Congress would soon become members of the College of Surgeons. Considerable discussion was prevalent relative to the establishment of a home for the College of Surgeons, although no site has been definitely decided upon. Washington or Chicago appear to be the locations most favored.

The following Nebraskans were registered:

C. A. Allenburger, Columbus.
S. A. Campbell, Tilden.
W. T. Evans, Columbus.
E. B. Hamel, Hastings.
C. C. Johnson, Creighton.
F. A. Long, Madison.
C. R. Mullong, Norfolk.
H. C. Smith, Franklin.
F. L. Wilmeth, Lincoln.
H. B. Boyden, Grand Island.
L. A. Dermody, Omaha.
H. M. Fitzgibbon, Omaha.
H. M. Hepperlen, Beatrice.
A. F. Jonas, Omaha.
E. C. Lynch, Valentine.
P. H. Salter, Norfolk.
J. S. Welch, Lincoln.

A Revised Classification of Nervous Diseases of Syphilitic Origin—Continued from Page 147.

quired for the formation of a gumma, and both "gummatosis" and "parasyphilis" are manifestations of the activity of the spirochaete in tissues that have become hypersensitive during previous stages of the infection. The difference between them lies in the tissue attacked. In the one case it is the meninges and vessels, in the other the reaction to the spirochaete occurs in the neuroglia and essential nerve-structures." Head & Fearnside farther state: "We propose, therefore, to divide cases of syphilitic diseases of the central nervous system into, (first) syphilis meningo-vascularis and (second) syphilis centralis. The meaning of the first term is obvious, for in many cases we know from clinical observation that the meninges and vessels must be affected. Syphilis centralis was chosen to include all those cases where the degeneration of nerve-tracts or nuclei shows that the lesion must lie within the structure of the nervous system itself. This latter class includes the former "parasyphilitic" diseases using the same in the strict sense, or those forms of the disease which are not materially influenced by our present methods of anti-syphilitic treatment."—(Brain, Sept. '14, p. 4).

According to the classification suggested by these authors, the first subdivision, that of syphilis meningo-vascularis, would contain the following clinical varieties—cerebral forms, encephalitis, etc., hemiplegia, affections of the cranial nerves, certain types of

muscular atrophy, myelitis, lateral and combined degenerations, and syphilis with epileptic manifestations amenable to anti-syphilitic treatment. In their second subdivision, that of syphilis centralis, the following clinical varieties may be mentioned: dementia paralytica, tabes dorsalis, refractory types of muscular atrophy, certain forms of optic atrophy, gastric crises and epileptic manifestations, this latter being a form of epilepsy first noted by Fournier, that appeared many years after syphilitic infection and which was entirely refractory to anti-syphilitic treatment, and of course he believed it to be a manifestation of "parasyphilis."

To summarize the findings of Head and Fearnside and define their attitude, we have the following:

(1) All manifestations of syphilis of the central nervous system are consequent on the direct activity of the spirochaeta pallida.

(2) The clinical picture evoked depends on the situation of this activity and on the susceptibility of the tissues.

(3) When the lesion lies mainly within the essential structures of the central nervous system both neuroglia and the nerve elements participate in the tissue-reaction. This results in the death and degeneration of certain systems of cells and fibres, and to these secondary consequences may be due the greater part of the clinical manifestations.

(4) The more closely clinical signs and symptoms point to pathological changes in the meninges and vessels, the more certainly will the disease yield to adequate treatment. On the other hand, when the clinical manifestations point to one or more foci of syphilitic activity within the parenchymatous tissues of the central nervous system, the less successful will be the present methods of anti-syphilitic treatment.

Obstetrical Symposium.

NITROUS OXID-OXYGEN ANALGESIA IN OBSTETRICS.*

Palmer Findley, M. D., Omaha.

By the introduction of anesthetics into obstetric practice, woman has been emancipated

*Read before The Nebraska State Medical Association, Omaha, May, 1916.

from the traditions of the past. In the sixteenth century witches were persecuted for their efforts in relieving the pains of labor and when in 1847 Sir James Simpson introduced chloroform into obstetric practice, he was roundly denounced by the clergy of Scotland for daring to relieve the primeval curse of pain from parturient women. The administration of chloroform for such purposes was looked upon as a sacrilege for in Genesis we read—"In sorrow thou shalt bring forth children." Simpson met the argument by quoting other passages of scripture in which God had promised to remove the curse. But it was not until Queen Victoria, herself, submitted to chloroform in childbirth that anesthesia in obstetrics became generally adopted.

Numerous articles have recently appeared on nitrous oxid analgesia in obstetrics and a very enlightening monograph on the subject by Carl Davis has been published by Forbes and Company of Chicago. In the past two or three years the obstetric clinics of the country have adopted nitrous oxid-oxygen analgesia in the ordinary delivery of cases and to a considerable extent in operative obstetrics. So general has its use become, we may say, that it has an established place in obstetrics, not only in hospitals but in private practice.

First of all, I would emphasize the fact that no anesthetic is safe in the hands of the careless and the inexperienced and all anesthetics are comparatively safe in skilled hands. This does not apply with equal force to analgesia which is a stage short of anesthesia. So long as the patient is kept in the stage of analgesia, there is comparative safety, no matter who the administrator, but the rub comes in keeping the patient in the analgesic stage without emerging into the stage of anesthesia unless occasion demands. To maintain a perfect state of analgesia requires experience and caution. It requires team work on the part of the accoucheur and anesthetist, hence it follows that nitrous oxid-oxygen analgesia may be safely but not necessarily efficiently administered by an inexperienced assistant. I have performed ad-

dominal operations with perfect satisfaction under gas and oxygen anesthesia and I have failed to control my patient in the simple operation of repairing a lacerated perineum where the anesthetiser had little experience with the administration of gas but was a good administrator of ether.

It is observed that a preliminary hypodermic of morphine greatly facilitates the induction of the analgesic state and where it is desired to obtain complete anesthesia the addition of a small amount of ether to the gas is sometimes required. The small amount of ether required serves as a mild stimulant. Nitrous oxid should never be pushed to the point of cyanosis. There is great variation in the tolerance of individuals to decreased oxygenation and the experienced anesthetizer will be alert to observe developing cyanosis.

Webster finds that we can lessen shock and use less gas by the use of local anesthesia preliminary to the administration of gas and oxygen.

As to the safety of nitrous oxid- anesthesia compared with chloroform and ether, we learn from Frank that the average mortality from chloroform is 1/3000, from ether 1/30,000 and from nitrous-oxid 1/100,000 to 1/750,000 (Miller); while scopolamine and morphine shows a mortality of 1/250 (H. C. Wood, Jr.) When we consider that nitrous oxid anesthesia presents such a low risk in mortality as 1/100,000 to 1/750,000, we are led to conclude that the combination of nitrous oxid and oxygen, not carried beyond the analgesia stage, will bear no mortality.

My interest in gas analgesia was incited by the work of Webster and his associates in the Presbyterian Hospital of Chicago. Added personal experience and the growing popularity of the method in the hands of obstetricians the country over, has led me to believe that it is the safest and in every way the most satisfactory method of relieving the pains of labor. Scopolamine and morphine will give satisfactory results in about 90 percent of cases, provided the administrator has had large experience and is equipped with padded rooms, skilled assistance and all the

devices of the hypnotist. But it does not relieve pain in the sense that chloroform, ether or nitrous oxid does; the patient simply forgets the pain when the labor is ended and the effect of the drug has passed away. It has its mortality and cannot be considered as a safe drug for mother or child under the best of conditions. To successfully direct a parturient through Twilight Sleep requires conditions which cannot be met by the general practitioner nor by a skilled obstetrician in a general hospital with the usual equipment. It is therefore limited in its sphere of usefulness to the occasional man under exceptional conditions. Nor do I believe that nitrous oxid and oxygen will find favor to any great extent with the general practitioner engaged in country practice. The apparatus is cumbersome at best, it is expensive as compared with ether and chloroform and to get the best results requires the added service of an expert. But in institutional work and where it is possible to have a trained anesthetist, there is no other means that will compare with nitrous oxide and oxygen in safety and efficiency.

It has no ill effect upon the blood, the kidney, the liver, the heart or the air passages and in this regard, it finds a priceless place in the conduct of complicated obstetric cases. It can be administered for several hours with no ill effects; it can be given throughout the first and second stages of labor, though as a rule, it is held in reserve until the pains become severe enough to call for relief.

The usual rule is to give pure nitrous oxid in the first and second inhalations at the onset of pain, to add 3 to 5 per cent of oxygen in the third and 8 to 15 per cent in the fourth inhalation. This will usually suffice to carry the patient throughout the uterine contraction and in entire absence of pain. The mask is removed as the uterus relaxes and the effect of the gas quickly passes off.

If it is desired to perform some obstetric procedure, such as version, the application of forceps or the repair of lacerations, more gas and less oxygen is given until the anesthesia stage is obtained. Whatever cyanosis appears in the baby is quickly dispelled and there is no delay in the cry of the child.

Postpartum hemorrhages are not occasioned by nitrous oxide and the lying in period is not prolonged. Idiocynergies to nitrous oxid are occasionally observed just as in chloroform, ether and morphine but with perhaps less frequency.

Carl Davis has analyzed his results in a large series of cases and estimates that the average period of labor is shortened 25 per cent by the administration of nitrous oxid and oxygen, which acts as a stimulant to the uterus and takes away the restraint of pain, while at the same time the will power of the patient is preserved. It is indeed gratifying to the friends and neighbors to observe the effect of nitrous oxid in controlling the outcries of the patient. In this respect it is particularly commended to institutional practice.

It is not in the expulsive and perineal stages that nitrous oxid and oxygen finds its peculiar advantage over other anesthetics. These stages can be controlled as effectively and usually as safely by chloroform or ether but it is in the prolonged first stage that nitrous oxide mixed with oxygen has a distinct advantage. Unlike chloroform, ether or morphine and scopolamine it not only does not prolong labor but actually shortens it and this with no ill effects.

Much has been written of late upon the nervous depression engendered by prolonged and painful labors and some obstetricians have gone so far as to advise Cesarean section to forestall these effects. The profession appreciates as never before the desirability of shortening labor and relieving suffering by every known and safe means. I submit that we have in nitrous oxide-oxygen analgesia and anesthesia an effective agent in the shortening of labor and in the relief of pain and hence in the prevention of nervous exhaustion which leads to invalidism.

PAINLESS CHILD-BIRTH.*

(Opium, Ether and Chloroform).

A. B. Somers, M. D., Omaha.

The Hebrew poet attributes the pain of child-birth to sin, and makes God say to the woman, because you have disobeyed,

*Read before The Nebraska State Medical Association, Omaha, May, 1916.

"I will make thy pain great in thy pregnancy,
With pain shalt thou bring forth children,
Yet toward thy husband shall be thy desire
And he shall rule over thee."

The greatest tragedies of life are the penalties of wrong doing but there are certain anatomical reasons why the suffering of child-bearing is greater in woman than in the animal creation. In contra-distinction with the rest of the animal creation, man maintains an upright instead of a horizontal position, hence all the supports of the abdominal and pelvic organs have in a degree to be strengthened in man over that found in animals. But the point of special interest in child-birth is that the pelvic floor in woman is very much stronger and more resistant than in animals, hence one of the most serious difficulties in child-birth. Another point of importance is that the twentieth century woman is not a physiological woman in a large percentage of cases and is not prepared to endure the hardships of reproduction so well as if she were perfectly developed physically and physiologically. It is also doubtless true that the refinements of civilizations and a higher degree of intellectual development have increased the size of babies heads and proportionately increased the difficulties of child-birth. Add to this the more sensitive nervous organization of modern woman as compared with the animal creation or more primitive woman and we need not attribute the pain of reproduction to sin.

The most striking phenomena of child-birth are first and second stages in pain, coupled with severe muscular exertion during the second stage. Phenomena that are designated by the exceedingly expressive title, "Labor Pains."

Any humane person seeing a woman in labor, instinctively asks himself why all this suffering and distress, and inquires what may be done to alleviate the same. Infant mortality at the time of child-birth is variously estimated at 3 per cent to 8 per cent, a mortality that most of us would consider excessive for a physiological process. To what extent the suffering of child-birth may be diminished without exerting an unfavorable

influence on the process and without endangering the life of the child is the problem before us.

Dr. Baughman, Prof. of Obstetrics, Medical College of Virginia in an article, "How may we make Labor more comfortable," says:

"In primiparae, we are dealing with women who are hypersensitized to pain and who are approaching twenty-four hours of the most severe suffering they have ever known in their lives. Further than that, they have had nine months' time in which to learn from their fellow sufferers the horrors of child-bearing. They have had three or four months of nausea and three or four months of embarrassment and separation from their usual avocation because of their condition.

"The first method of making the woman more comfortable is to have her perfect confidence. This can be gained only by first being an intelligent and scientific accoucheur and then by transmitting this knowledge of ability in a pleasant way to the patient.

"A sympathetic, but firm handling of the case at the time of delivery will cause a continuation of this confidence, which to my mind is one of the most important things in making these women more comfortable. There are some men that depend upon this method entirely. While it will act in a few cases and while it helps immensely in all cases, I do not believe that we should limit our endeavors to this plan alone.

"The drugs that experience has taught me to depend upon in helping to alleviate suffering are chloral, morphine, sodium bromide, and "twilight sleep" in the first stage and chloroform and ether in the second stage."

The discussion of relief of the lying in woman brought about by the "Twilight Sleep" method in the popular magazines and newspapers has had a salutary effect as it has aroused the medical intelligence to face the fact that a great deal of the pain of child-birth is unnecessary and it has aroused the suffering parturient woman to demand that she be relieved from undue pain so far as safety to herself and child will allow. If the antepartum woman could also be aroused to the fact that much of the inconvenience, suffering, and risk of the period of pregnancy are preventable very much would be accomplished in the way of relieving the obstetric woman from the mental apprehension attending the reproductive process. The educational campaign is now on and the coming

generation will see great advancement in the safety and comfort of child-bearing.

One of the first requirements in "Painless Child-birth" is implicit confidence in the attending physician. This means also that the physician should devote more time to his patient than is usually the case. In other words, a woman in labor should not be left alone. The moral influence and encouragement that a woman derives from the presence of a trusted physician who is ready at all times to do little things that will add to her comfort with assurances that she will not be allowed to suffer unduly, does very much to bridge over much of this suffering. A thoroughly competent trained nurse is an important ally of the doctor in this work. It is barbarous to let a woman go through hours of suffering with no sympathetic encouragement as many do.

It is generally understood that infants are very susceptible to drugs, and especially to narcotics and anesthetics, and there is no question of the necessity of using any and all of these drugs with unusual care when the welfare of the child is taken into consideration. To what extent is it safe for us to be-numb or paralyze a respiratory center that has never functionated and expect it to act when the circulatory connection with the mother is broken, is indeed a question of grave importance. And at this time when we look upon the period of child-birth and infancy as the most promising field for increasing the length of human life, it is well for us to consider fully the deleterious effect of drugs on infantile life before we resort to narcotics and anesthetics, indiscriminately in every case of labor and in all stages of labor.

When we come to consider a pain reliever in child-birth, we have to consider both the immediate and remote effects on both mother and child, and it also becomes necessary to consider both the immediate and remote effects with reference to the proximity to the end of the second stage of labor. For example, a dose of narcotic that would be safe for a child four hours previous to the termination of labor might be exceedingly dangerous if administered thirty minutes or an

hour previous to delivery. I have no sympathy whatever with these people that claim to find serious after effects to the baby from the use of narcotics and anesthetics during labor. It is primary or immediate dangers that we are dealing with and not secondary or remote effects.

In using pain relievers, we must discriminate between the first and second stage of labor and condition of cervix. Ordinarily the multipara will go through the first stage of labor without suffering unduly, so also the primipara under normal conditions will do the same. But there are cases of labor especially in primipara of neurotic tendencies where there is a long, close, unyielding cervix, a malposition or presentation or a lack of liquor amnii where the first stage is unduly prolonged and as a result the mother becomes exhausted from loss of sleep or prolonged discomfort so that she is in very poor condition to complete the second stage. Another condition that is embarrassing to the mother is the time of day that labor begins. Suppose the mother has been attending to her household duties all day and when she settles down for a night's rest the labor pains come on and recur with sufficient frequency to keep her awake. With the average duration first stage in primipara, twelve to fifteen hours, the woman is going to be in poor condition from lack of sleep and rest for twenty-four to thirty hours when labor is completed the next day. I recall the case of a primipara thirty and more years of age where I was called to do a craniotomy on a child that had no doubt died during labor where the mother went into labor in the evening, passed a sleepless night, was in labor all the next day and next night without sleep, giving a total of forty-eight hours without rest. Do you wonder that the child was dead and the mother suffering a severe degree of exhaustion? It is well for us to remember that prolonged labor after rupture of waters is dangerous for the child more than moderate doses of narcotics or anesthetics.

As a pain reliever in the first stage of labor until the cervix is half dilated, I want to put in a plea for the most time honored drug in the whole pharmacopeia, namely

opium in some form, preferably morphine hypodermically in moderate doses never to exceed one-fourth grain unless the first stage is prolonged more than six or eight hours when a second dose may be given, using one-eighth instead of one-fourth grain, 1/100 grain of atropine is a good adjunct to the morphine. Large doses of morphine near the termination of labor are dangerous to the child. My usual dose being grain $\frac{1}{8}$ or $\frac{1}{6}$ with a maximum of $\frac{1}{4}$ early in the first stage of labor when I wish to stop the pains sufficiently to give the patient a few hours rest. It will do this and at the same time relax and promote dilatation of the cervix to a degree and labor will proceed more rapidly than if labor had been allowed to proceed without the aid of a narcotic. In some cases, I supplement the morphine with 20 grains of chloral as a hypnotic and where there is a distinct neurotic element the chloral assists in relaxing the cervix very perceptibly. Chloral, however, is contra-indicated in all cases of a toxemic character. Sodium bromide is good if given long enough in advance but it takes several hours to get marked effects from bromides. Both of these drugs are best given per rectum.

During the second stage of labor, I rarely give any narcotic, and yet many times one dose of morphine grain $\frac{1}{8}$ will give a degree of relief, but when the cervix is fully dilated and there are good bearing down pains causing an undue amount of suffering, it is well to give ether at the onset of the pain and follow it up until the pain reaches its maximum. As the labor progresses and pain becomes more lancinating, the ether is increased to the extent of producing anesthesia sufficiently profound to relieve pain and relax spasm at the time the child is delivered. This gives opportunity to deliver the head very slowly and minimizes the danger of injuries to the vaginal outlet. This in brief, it appears to me, is the safest method, of the most universal application and simpler in every way than any method of pain relieving that we know at the present time. It is desirable to have a trained assistant to have charge of the anesthetic during the final stage. And yet at the same time the average physician accustomed to surgical

anesthesia is prone to make the anesthesia more profound than is required. The best obstetric anesthesia is less profound than what is known as surgical anesthesia. Ether anesthesia eliminates expensive apparatus and complicated paraphernalia and is applicable in a very large percentage of cases even when the attending obstetrician has to care for a case single handed and alone except as he may utilize members of the family. I do not recognize only one occasion for the use of chloroform in obstetrics and that is inability to get ether. It is not necessary to discuss the merits of ether and chloroform at the present time only to say that while chloroform may be reasonably safe for very light anesthesia, it is not safe for profound anesthesia and is absolutely dangerous in toxemic cases and the secondary effects in twenty-four to forty-eight hours are dangerous to both mother and child. Prolonged ether anesthesia to a surgical degree may be detrimental to the child but brief anesthesia even though given to the surgical degree is not. It is well to bear in mind that all effective remedies may be dangerous if not skillfully used. A knife is safe if skillfully used so also are drugs but the successful administration of drugs and anesthetics in labor requires skill if the dangers are to be eliminated.

Ether is the one anesthetic that has stood the test of fifty and more years and is more strongly entrenched as a safe effective pain reliever than ever. I have learned during an experience extending over a period of more than forty years to stand by a good thing until I am satisfied that something better has been found and as a result I have been spared the humiliation of advocating many things that have been tested and relegated to the dump. One of the tragedies of modern medicine is the large number of cocksure cures that have been consigned to oblivion after a very limited period of popularity in limited circles.

In conclusion let me add that the obstetric teachers of fifty years ago taught the value of opium and ether and chloroform as pain relievers in child-birth. We have learned since that time to discriminate between the relative merits of ether and chloroform.

We have also adopted some refinements in the use of all of them. But today the moral influence of the obstetrician with the judicious use of opium and bromides and chloral intelligently used in first stage and ether during second stage will materially mitigate the suffering incident to child-birth.

I cannot close this brief article without emphasizing the great satisfaction there is in "Team Work" in the practice of obstetrics. The lives and comfort of two persons are at stake, emergencies may arise in any case and the physician that has to meet all the obstetric emergencies without trained assistance is working at a disadvantage. No surgeon would think of assuming the responsibilities in surgery that are incurred in the ordinary obstetric case without two or more assistants.

SCOPOLAMINE AMNESIA.*

W. H. Taylor, M. D., Omaha.

In taking up the subject of scopolamine amnesia, the "Twilight Sleep" of the laity, I wish to give the method used and the results of over fifty cases which have come under my personal attention. This number is comparatively small but will give one some idea of the method used, and the results obtained. By scopolamine amnesia, we mean a mental state in which the patient without total loss of consciousness, loses or has diminished the power of reception and perception. Or it may be defined as a temporary analgesia and amnesia produced by scopolamine and morphine in a patient in labor.

The action of this drug on the parturient woman was first studied by Gauss who reported, in 1906, 300 cases from the clinic of Kronig at Frieburg, with full and complete directions as to the use of the method. A number of other men immediately took up the work but disregarding the teachings of Gauss, followed his technic of administering the drug only in the main and paying no attention to the details, reported a large number of cases with a large percentage of bad results. With the exception of the Frieburg clinic, the work was largely discontinued until 1913 when Kronig reported 3000 cases

with good results. In this country Newell in 1907 reported 112 cases favorably but later discontinued it because of asphyxiated babies. McPherson in 1908 at the Lying-In Hospital of the City of New York tried it out and did not get the amnesia with the mothers and did get a high infant mortality. After Kronig's favorable report, McPherson and Harrar tried it again with the idea of criticizing and condemning it. But to their surprise when following closely the technic of Gauss their results were entirely different from those in 1908. In 1914, they reported 100 cases with good results. They are still using and teaching the technic of scopolamine amnesia with increasingly better results.

During 1915, I was very fortunate to do a large amount of work at the New York Lying-In Hospital and under Drs. Harrar and McPherson took up the study of scopolamine amnesia. In this maternity, I have done the greater part of my work along this line. At that time Rongy of the Jewish Maternity, Krupes of Gouvenour Hospital, Polak of Brooklyn, and other were doing considerable work and getting good results. I think Harrar and Polak followed the technic of Gauss more closely than any of the others and their results are, perhaps, somewhat better.

In scopolamine amnesia, we use as a routine scopolamine, morphine, and at times ether, chloroform, or nitrous oxide. Of these drugs, morphine and the general anesthetics we are all familiar with. Scopolamine derived from the plant *Scopolo* is not as is sometimes thought, the same drug as hyoscyne, derived from the plant *Hyoscyamus*. While it may be the same chemically, it is not the same in its physiological action. For this reason most all of the earlier results cannot be accepted. Any one who claims hyoscyne and scopolamine are one and the same drug in their action is starting on the wrong premise and cannot with justice discuss the physiological action of scopolamine as is manifest in the amnesia of labor for it is a definite drug with a definite action in most individuals. Scopolamine is a rather unstable drug unless carefully prepared and kept from the action of light and oxygen. The drug

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put up in the form of **Scopolamine Stable Roche** prepared after the method of Straub, in ampoule form is the most standard stock preparation of the drug on the market. Some are preparing the solution fresh, using a Merck preparation of the drug, and getting good results. The **Scopolamine Stable** will keep for several years and gives a constant effect. The use of narcophen was at first advocated as better than morphine but this has not been proven. Morphine is at present used instead of narcophen with the private cases of Frieberg. The general anesthetics are used in most operative procedures and as the head passes over the perineum.

Scopolamine has two actions. The primary of which is amnesia, and the secondary one of analgesia. It acts chiefly upon the central nervous system, quiets the cerebrum and diminishes the perception of pain, but does not affect the involuntary muscles directly. The action of scopolamine alone upon the baby is very slight, when given in proper doses to the mother. It does flush the skin and prevents some shock to the baby in operative work.

Theoretically scopolamine amnesia could be used in all cases of labor. But in actual practice this does not work and is contra-indicated in primary inertia, hemophilia, multipara with short labors, or in any case in which we expect delivery of the child within three hours of the time of administering the first dose.

There is no special rule that one may follow in the selection of the case, and as to the time of using the drug. But in general in a primipara with no great disproportion between the pelvis of the mother and the head of the baby, with the pains coming at regular intervals of four to six minutes, lasting from thirty to forty-five seconds, foetal heart distinct, we begin the drug. Usually in these cases, the head is in the mid-pelvis and the cervix dilated one to two fingers. In a multipara with the same relation between mother and baby, we start as soon as the pains become regular, in order to be certain labor has really begun. In either case, we do not anticipate labor to terminate within three hours. The patient is prepared for labor,

being given a hot enema to empty the bladder and rectum. It would be ideal to have the patient in a dark room, absolutely quiet and nurses trained to the method. But in actual experience, we do not often have this and if the room is partially darkened, with no sudden changes of light, and no sudden noises, we can carry on the work successfully. Only at the actual delivery, is it necessary to blindfold the patient and place cotton in the ears as the delivery is carried on in the lighted room, and some noise is unavoidable at this time. It is not necessary that we have a nurse trained for this work, if the one administering the drug thoroughly understands the method, and can give all his time to it. Any good nurse with plain common sense, who will follow directions intelligently will do. I have used nurses who have never assisted in the delivery of a case before.

The method of administering the drug is the key note of success. If it is followed carefully, no harm can come to either mother or baby. The first dosage consists of $1/200$ gr. (0.0003 gm.) of the **Scopolamine Stable** and $1/6$ gr. (.01 gm.) of morphine, given subcutaneously. The morphine is not to be repeated. If patient has a known idiosyncrasy to morphine it is not to be used. The second injection consists of $1/130$ gr. (0.00045 gm.) scopolamine forty-five minutes after first dose. The third injection is given ninety minutes after second and consists of $1/200$ gr. (0.0003 gm) or $1/130$ gr. (0.00045 gm.) of the scopolamine according to the reaction of the patient. The time interval of the first three doses and amount of drug for first two doses is somewhat empirical, forty-five and ninety minutes apart and $1/200$ and $1/300$ gr. respectively. After the second dose the amount given and after the third dose the time interval depends upon the reaction of the patient. It is a safe rule not to repeat the drug more often than one hour, and not less than two hours and thirty minutes. It is better to give smaller doses at shorter intervals than to allow too long a time to lapse between and then to have to give a larger dose. It is the aim to carry the patients just on the verge of consciousness and not

to have them deeply under the drug at any time.

The tests used determine the amount of the drug given and the time interval. The memory test is the most constant and accurate. One-half hour after the first injection, the patient is shown some familiar object, as a cup, at the same time asking her what it is. Thirty minutes later she is shown the same object and asked what it is and when she saw it before. If she knows what it is and when she saw it, her memory is retained. If she knows what it is and not where she saw it, her memory test is dubious. If she does not know what it is and does not remember having seen it, her memory is lost. Every thirty minutes she is shown a new object and the test used as above, until her memory is lost for one hour, then it is repeated every hour. The reflexes are tested by means of the Babinski every thirty minutes. A positive Babinski usually means the patient is under the influence of the drug. It is not as reliable as the memory test but simply gives one more check. If at the time of the third injection, the memory is retained an injection of 1/130 gr. (0.00045 gm.) scopolamine is given; if the memory is dubious, the dose is only 1/200—1/300 gr. (0.0003—0.0002 gm.) Later, if the patient is regaining her memory and especially if the Babinski is negative, the dose is repeated in from 1/200 gr. (0.0003 gm.) to 1/600 gr. (0.0001 gm.) It is very important that these tests are very carefully carried out, as the frequency and the amount of the drug used depends largely upon these. As one grows experienced in the action of scopolamine, one depends somewhat upon the general reaction of the patient as well as the specific test, and it is in this respect that men differ in their results.

During labor, the nurse every fifteen minutes, times the frequency, length and strength of the uterine contractions, which are estimated by placing the hand upon the abdomen, and records the same. At the same time, she takes and records the maternal pulse and the foetal heart. One of the first symptoms of the action of the drug is a feeling of weariness. The face becomes flushed,

the mouth and throat somewhat dry, the motor coordination is partially lost, and the maternal pulse increased to one hundred or over. In about fifty per cent of the cases, the interval between the pains increases soon after the first injection, but resumes the normal for that case in forty-five to sixty minutes. This is due to the morphine given with first injection. The patient sleeps between the pains, awakens with the pain and may make some outcry. The outcry of the patient cannot be regarded in estimating the dosage of the drug. Only in those cases who have a idiosyncrasy to the drug, and then the method is discontinued, and not pushed. In the second stage the patient is told to bear down and practically all will bear down with the voluntary muscles if stimulated by pressure on the abdomen above the fundus. It is very necessary that the progress of labor be watched carefully or the baby may be born without the attendants knowledge. Examinations as to the progress of labor are conducted as often and in the usual manner of any case of labor. Rectal examination is very good to use in these cases. As the presenting part makes pressure on the perineum, the patient usually becomes somewhat restless with the pain. As the head distends the vulva, the patient is blindfolded and cotton put in the ears, and prepared as any case of labor for delivery. The use of 3.5 per cent Tr. of iodine is preferable to any other to sterilize the immediate field of operation. As far as the actual delivery is concerned, it is conducted in the usual manner. If the patient is restless, it is best not to attempt to restrain her very much as it only makes things worse.

As this method of administering scopolamine keeps the patient just on the verge of consciousness and not deeply under its action, ether is usually administered at the time of delivery. The amount is usually very small and given to complete anesthesia as soon as the head is under control. The baby upon delivery is usually pink in color, more so than normal, and cries as spontaneously as any baby, unless delivered within three hours of the morphine injection. The cord is attended to and the baby cared for as usual.

Unless the mother is not under the ether then the cord is cut as soon as possible and the baby removed to another room. This is to avoid the crying of the baby, and the exclamation of the by-standers disturbing the mother. The uterus contracts, separates and expels the placenta in a normal manner. If any repair work is to be done, ether is usually given to a surgical degree. The post-partum hemorrhage is no greater than usual. The mother is prepared for bed as soon as possible and not disturbed. She usually drops off into a normal sleep and wakens from four to six hours later. No one is to tell her about the labor or the baby unless she asks about it for at least six hours after.

The first stage of labor is greatly shortened as the dilation of the cervix and lower uterine segment is quicker than in the usual case. But the perineal part of the second stage is prolonged, the woman lacking the final push in about fifty per cent. It is useless in the great majority of cases to wait more than forty-five to sixty minutes for the completion of the perineal stage. Pituitrin is not a good drug to use in these cases as it causes so much direct pressure on the baby that the majority of them are born in condition of pallid asphyxia. For these reasons our low forceps were twelve per cent. But the use of medium and high forceps are decreased. Our cases do not complain and do not tire out so much, thus we can give more time to the stage of dilation.

The total time of labor is less than the usual case. The average time in fifty cases of primipara was fourteen hours, forty-five minutes with an average of seven hours and forty minutes that the patient was under the drug. The maximum time of labor was twenty-four hours and the minimum four hours, thirty minutes. The maximum scopolamine time was eighteen hours, fifteen minutes, while the minimum time was two hours thirty minutes. The maximum amount of scopolamine used was .0017 gm. while the minimum was .0009 gm. The same amount of morphine being used in all cases. Complete amnesia was obtained in eighty-eight per cent, the mothers knowing nothing of the labor after the first or second injection nor

of the birth of the child. Partial amnesia was obtained in eight per cent, while no amnesia was obtained in four per cent of the cases. But some analgesia was obtained in all the cases. Let me add that we have been neglecting a very useful drug in the conduct of labor even where we do not expect to carry cases to the point of complete amnesia. The use of 1/200 gr. of scopolamine, possibly combined with a little atropine, in the first stage of labor in nervous women, or in cases of slow dilatation of the cervix is of great help.

In the study of the babies, we find that ninety-two per cent of the babies were pink and cried spontaneously. Eight per cent required some resuscitation, of these, two were due to the scopolamine and morphine, one being a very early case in which I gave too much drug and the other a labor terminating in two hours, thirty minutes after starting the treatment. One was due to prolapsed cord and rapid delivery, the other due to a short cord around the neck. In three of the cases, short cords around the neck were recognized by watching the foetal heart and the babies delivered immediately. No babies were lost and the mothers suffered no bad effects of the drug.

The post-partum changes are the same as any case, the uterus retracts, and involution occurs no faster than normal. The lochia is normal and the secretion of milk is not interfered with. The physical appearance of the patient differs from the majority of the ordinary cases. She is not exhausted, and is not nervous. Often she will ask if they cannot get her up on the following morning. She does not have the dread of pain that many women have. The baby is pinker than the usual baby for eight to ten hours when it is the same in appearance. It nurses as it should and does not show any after effects of the drug.

The technic described is that of Gauss. It is the only one that is satisfactory and if followed closely will give the results as stated. It was unfortunate that a number of American doctors saw the Siegal method used at Frieburg and have reported it in discouraging scopolamine amnesia. This method

is such that the nurse may give it, as it is given at stated times, with a definite amount of scopolamine and morphine. The morphine also is repeated which is not to be advised. This method has not worked successfully and is not to be recommended. As with many other things scopolamine is not absolutely necessary and many mothers will continue to bring babies into this world without any relief from pain whatsoever. But if one is to specialize in the science of obstetrics, he should have it in his armamentarium as well as nitrous oxide, ether, chloroform, and other drugs employed to relieve the suffering of women.

Scopolamine amnesia is something which has come into use to stay. It will give relief to nervous high strung women, and to those who one anticipates will have a long tedious labor as no other method will. For any case, it will relieve the dread of the expected confinement. It is the only method that can be used satisfactorily over so long a period of labor, especially through the first stage. It does take considerable of the physician's time, but when one realizes that the suffering and shock of the mother has been reduced to the minimum, it seems to be well worth the time and labor.

DISCUSSION.

Dr. M. L. Hildreth, Lyons.—I would like to know what method we have of determining what effect a quarter of a grain of morphine has on a baby—an unborn baby. Is it possible to know whether it has any effect or not? You occasionally see still-born babies; now, in the early days it was taught that in estopic pregnancy one of the proper methods was to inject a good dose of morphine into the body of the woman and kill the foetus. I have never been able to determine how much a baby would stand. The teaching of some of the older obstetricians was to use chloral by rectum, and I have done so frequently in threatening premature labors. For instance at 7 or 8 months, where there was a tendency to abortion, or premature labor, I kept the patient under the influence of chloral for several days, and still got through to a normal term with a healthy child. I have used more chloroform during the latter part of the second stage than any other anaesthetic but I believe that ether is safer.

Dr. W. S. Gibbs, Omaha.—I think the country practitioner is all right. As little anaesthetic as possible, and the longer I practice medicine the more experience I have had, the more I am convinced that

the great majority of confinements need no anaesthetic whatever. They do not need morphine—they do not need quinine—I used to give them quinine—give them time. Now, there are a few occasional cases that need an anaesthetic and of all the anaesthetics I ever used, ether is my choice. It is the finest thing there is. It is safer than chloroform always, in any kind of a case. It is safer in anybody's hands. I do not see how anybody could manage to kill anybody with ether, if they had any sense at all. It is absolutely a safe anaesthetic. I never called but one man to help me in my life to deliver a patient and that was my old friend, Dr. Somers. I got a case that I couldn't deliver with forceps and we two delivered it. It is the only time I ever asked anybody to help me deliver a case with forceps. I do it myself. Of course there are cases that require Caesarian section. I had a little niece out in California delivered that way. I am very glad there is such a way. I congratulate my friend, the country doctor; he is all right.

Dr. J. Lue Sutherland, Grand Island.—In a practice of over a third of a century, I have yet to see my first case of labor that was in any way injured by the judicious use of chloroform. Every case is a law unto itself, or should be so considered. Morphine also has its uses here. Where the pains are nagging, and the first stage slow, a light dose, an eighth of a grain, and sometimes less, combined with its usual proportion of atropin will take the edge off; and this is what I tell the woman; I say to her, "I am going to give you a little hypodermic that will take the edge off the pains but will not delay the progress of the labor." Some were affected of course, more than others, and would be correspondingly quieter, and after the labor was over would express themselves as to the relief they experienced from the morphine; I have found that the morphine lessened the amount of chloroform needed later. As Dr. Gibbs has just said, the administration of ether is poorly received in inexperienced hands, and sometimes we are obliged to trust the anaesthetic to the hands of some neighbor woman, and in such an event I would much rather use chloroform keeping careful watch of everything than to try to use ether. Sometimes the mask would be held too close and sometimes too far away and sometimes in such a position that the patient would get none. Chloroform judiciously used requires but a small quantity at a time and given only when the pains were on and severe, I can conceive of no physical condition of the patient that would contraindicate it, and I am a strong advocate of limiting the pains in every case of labor to the minimum.

Dr. John D. Reed, Pilger.—I have been in the general practice of medicine for a number of years and have used anaesthetics without bad effects. In the last few weeks I have begun the use of nitrous oxide and my experience has been very favorable. I have delivered a number of women with nitrous oxide,

that I had formerly delivered with chloroform and my testimony is that there is no comparison between the two. I think the patient is really the individual that should decide the matter in any method. I delivered a patient Sunday morning that I had twice delivered with chloroform and she said there was no comparison at all between the two methods. She lay there and worked hard and said she was perfectly comfortable.

Dr. A. E. Mack, Omaha.—I want to endorse absolutely Dr. Palmer Findley's position on the nitrous oxide anaesthetic. I have been using nitrous oxide anaesthetic during the last fifteen or sixteen months with splendid results and without one bad result. A very large percentage of the patients, just as my friend here stated, passed through their labor without any pain whatever, and I say with emphasis, without pain. Nitrous oxide gas given properly, and by that I mean by one who knows, is absolutely safe to both mother and child. I want to say to you that I am strong for nitrous oxide; and I also want to say to you that I am strong against the morphine-scopolamine treatment. We know from experience with morphine and scopolamine just what it does; we know in a general way it masks a great many cases. We do not know whether labor is progressing or whether it is not and it will require numerous examinations. There is great danger of infecting the patient from these numerous examinations and I want to ask Dr. Taylor how many of his patients it was necessary to put in restraint during the administration of the morphine and scopolamine and how many patients it was necessary to keep in restraint for hours and days immediately following it? Also how many postpartum hemorrhages there were? Now, I do not mean to say that morphine is never indicated, for it is, but we know that when we give morphine and give it in considerable amount, that it does increase the danger of postpartum hemorrhage and there is no question about it. And I would like to know how many of these patients did not regain their absolute normal mentality following this treatment? To make a long story short I am strong for nitrous oxide gas. It is not such a cumbersome thing to carry about. I understand Dr. Somers to say that chloral was contra-indicated in all cases of toxæmia of pregnancy. It has been my experience that chloral is indicated in clinical conditions and is one of the four principal remedies we have. So that we consider chloral hydrate as one of our four principal remedies in cases of toxæmic pregnancy.

Dr. R. A. Gilmore, Omaha.—I would like to ask the doctor if the statistics he has given have reference to obstetrical practice alone or whether it is general mortality?

Dr. C. W. Pollard, Omaha.—When the cervix is rigid, chloral hydrate will benefit a great deal in slowing up the pains of labor and softening the

cervix. I agree with what Drs. Findley and Mack have said regarding nitrous oxide analgesia, but I generally use chloroform if I can, in the second stage.

Dr. L. M. Stearns, Kearney.—I would like to ask the members here how many have seen detrimental effects from the use of chloroform in obstetrical anaesthesia, for either the mother or the child?

Dr. F. W. Johnson, Fullerton.—I take a good deal of satisfaction in the fact that so many people are highly in favor of scopolamine and morphine. About two years ago we had a little discussion here and some people were inclined to jump on it pretty hard. I was one of them that made a little talk in favor of it. The combination ought to include brains as well as morphine and scopolamine. I have been using it right along more or less, but in selected cases. I have never been fortunate enough to obtain scopolamine. I have always used the hyocyamus. At first I had lots of trouble with my babies, but as soon as I found out what the trouble was I was Johnny-on-the-spot and we got them through; but if you go off and leave your baby within fifteen or twenty minutes after labor he is going to be dead when you return. We fellows out in general practice are not practicing medicine very scientifically. If nitrous oxide is going to do the business, I am going to get an apparatus and put a trailer on my machine, if necessary, and carry it. The big element is this: that a woman in giving birth to a child suffers an awful lot and is entitled to relief. As Dr. Gibbs said, it is a good deal in the personality of the operator. Now, as far as a quiet time is concerned, in the country, if you keep the people out of doors and you are out in the country a mile and a half from the nearest neighbor, I do not see as you can have any better environment.

Dr. Olga Stastny, Omaha.—I do not believe it is absolutely necessary to limit the twilight sleep treatment to hospital practice. I do not see why it cannot be used in country practice. I do not like to think that it is not necessary to give some anaesthetic in obstetrical practice. I think the same argument might be brought forward which they used in the beginning of the use of anaesthetics in surgical operations. Your apparatus can be put in a car and two people can use it successfully. I prefer to have a trained helper use the nitrous oxide. I am very favorably inclined toward scopolamine from my experience in Boston. Not only the laity, but also the profession, have been so opposed to it, that I have not practiced it so much in the west. I have given scopolamine in the home. I have been able to persuade the family that we could use this and I have had just as quiet a home without a padded cell. If I can shorten the first stage and bring relief from pain I find my women working better in the second stage and I use a little ether while the head is passing over the perineum. I still believe we will be able to use twilight sleep in the west.

Dr. F. A. Wells, Axtell.—I like very much to sit here and listen to my old professor. Chloroform has been my standby when necessary, although I often try to go through a case without any anaesthetic whatever. Now, perhaps it is different in the city, I have not been used to city practice, but I prefer chloroform when an anaesthetic is absolutely necessary.

Dr. A. B. Somers, Omaha, closing: A man's experience is worth something, but no one man's experience even if he practices for fifty years is worth everything. And no one man can judge from an experience of fifteen months or a year or six months, of what is coming in the use of certain remedies. I had a little experience in New York when I was a young man. New York believed in ether, absolutely believed in ether. I came west about thirty years ago. Everybody in Omaha believed in chloroform, absolutely believed in chloroform. And our leading men in Omaha used chloroform until every last one of them had one or more deaths. Then they all turned to ether. You don't find any of our leading surgeons using chloroform in Omaha today. So far as chloroform is concerned in obstetrical practice, a few whiffs is all that is necessary. But I want to say to you right now that the men who know most about obstetrics, De Lee of Chicago, Williams of Johns-Hopkins, Edgar of New York, Green of Harvard and the men that have done the big business and stood by and had the most experience in this country will tell you that chloroform is absolutely dangerous if there is any condition bordering on toxæmia. And when you come to your toxæmic cases keep out your chloral; the effect on the toxæmic case is practically the same. I am not talking to you specialists in experience. I have had considerable experience in the last forty odd years, but I do know the consensus of opinion among the leading obstetricians of the United States at the present time. As my friend, Dr. Gibbs says, a large majority of your cases do not need an anaesthetic. Every little while I just barely get there in time to catch the baby. But we are talking about these cases that are suffering unduly—and of doing something to relieve them. One gentleman asked about how much morphine was dangerous. It has been considered safe for a woman to have a quarter of a grain of morphine and pretty close to delivery. I have seen at least one child die following a quarter of a grain of morphine that was given because the woman was going to have a Caesarian section. I would say a quarter of a grain of morphine isn't safe unless it is administered at least four hours previous to the delivery of the child and ordinarily I believe in an eighth of a grain or a sixth of a grain rather than a quarter. But suppose you are called to the woman early in the evening; she has a close cervix, is a primipara and you know she is going to be sick all night. I don't hesitate to give her a quarter of a grain of morphine because I know she has plenty of time to eliminate the drug. I contend that morphine is one of the best reme-

dies that we have for quick action in postpartum hemorrhages. I do not believe that a dose of morphine ever produced a postpartum hemorrhage in the world. In fact one of the first things I give a woman threatened with postpartum hemorrhage is a dose of morphine.

Ether and chloroform came into existence and use about the same time, somewhere about seventy years ago and everybody that has said anything here to-day has told you that ether is safer than chloroform. I do not take much stock in statistics. You know the man who said there were three kinds of lies—white lies, black lies, and statistics, and there is a good deal of truth in it. At the same time, it is generally conceded that ether is the safer of the two anesthetics. Nitrous oxide has not been established. Crile of Cleveland uses it a great deal; he knows more about nitrous oxide than any man in the country, but east of Cleveland nitrous oxide is being discarded a great deal. Professor Webster has made it popular so far as it has become popular in this western country. To a degree, it is unpopular when you come to New York, Johns-Hopkins, Boston and back east. In place of it, scopolamine is popular in the east and it is not popular in the west. One of the circulars I received the other day of the summer course that is to be given at Johns Hopkins this summer states that among the things that are to be taught in their summer school course is scopolamine amnesia in obstetrics. That is Williams—Williams is one of our most scientific men, one of the best men that we have in the country. As I say, I don't care personally to enter into an attack upon these things, if there is any good in nitrous oxide it will become established; if there is any good in scopolamine it will become established and by and by twenty or thirty years from now if it is worked out, you will know whether to use them or not.

Dr. W. H. Taylor, Omaha, closing: Dr. Mack asked as to how many cases we had to put under restraint. I have had two cases which the scopolamine made restless. One of the early cases cared for, in which I gave an over-dose of the drug, I had the patient too far under. Practically every time you carry the scopolamine too far, your patient will get restless. The other case was one in which the patient had an idiosyncrasy for the drug and it was discontinued. I have seen about seventy-five altogether and there was only one we had any trouble with at time of delivery and that was where we gave too large a dose. As far as infecting your cases, that depends on the technic of the man. You know absolutely in scopolamine where your cases are, the same as with any other method. If you do not, it is your fault and not the fault of the method. As far as examination is concerned, you don't need to examine any more often unless it is to see when the baby is to be born, because sometimes you find the baby in the bed without having the patient give any sign of the birth of the baby.

As to postpartum hemorrhage, I have never seen it follow amnesia. The hemorrhage is the same as in the normal case, I can't see any difference one

way or the other. So far as the effect of the morphine on the uterus, practically every case, as I said, should be delivered not sooner than three hours after starting the injection. Your morphine has no effect on the uterus in that time so it could not affect your uterus in postpartum hemorrhage. As to mentality of the patients, I have seen one case only which did not recover the normal conscious mind within six hours. That case was fourteen to sixteen hours in recovering but we did not know it until after she came out of it and told us she didn't remember. As to any permanent mental effects, there are none. They use so much larger doses in surgery in scopolamine anaesthesia and you do not hear bad reports on the mentality, so we do not expect a change where we use much smaller doses. One mistake the doctors make in using scopolamine; they do not differentiate between scopolamine and hyoscine. If you use one you will not get the effect of the other. And for that reason the HMC tablet, or equivalent will not work in these cases because it is a hyoscine preparation. So far as scopolamine amnesia being a fake, time will tell us that. But as Dr. Somers says, Johns-Hopkins is teaching it this summer and they are teaching it in the New York maternities according to the latest report from Dr. Harrar and men are going out over the country and using it.

Dr. Palmer Findley, Omaha, closing: I would be safe in asserting that the gentlemen who have entered a plea for no anesthetics in normal labor have never experienced the pangs of labor while our friend Mrs. Dr. Stastny who made such an eloquent plea for anesthesia in obstetrics, I know has.

I have no personal experience with the so-called twilight sleep. In this as in all other things I have followed the rule to, "be not the first by whom the new is tried, nor yet the last to lay the old aside." In the Charite' Hospital of Berlin, while I attended the clinic, there were fifty deliveries under scopolamine and morphine with two maternal and five infant deaths. Needless to say the procedure was abandoned. Dr. Taylor referred to three institutions in New York where twilight sleep is in vogue. If the doctor will take occasion to revisit New York City he will find a different state of affairs than that of a year ago. The New York Lying-In Hospital has abandoned the method. In this I quote Dr. Asa B. Davis as my authority. Dr. Polak of the Long Island Hospital never adopted the method to the exclusion of ether, chloroform and nitrous oxide gas, and this year he was honored with the presidency of the New York Obstetrical Society, an honor which was denied him last year because of his advocacy of twilight sleep. It is true, as Dr. Taylor has stated, that Dr. Kneip is an advocate of twilight sleep and that he has gained notoriety as a devotee of the method.

When in New York City last January, I read in the New York Times that the citizens living in the neighborhood of Dr. Kneip's Maternity had complained to the city authorities that his institution

was a public nuisance because of the outcries of Dr. Kneip's patients. I might also add that Johns Hopkins in Baltimore and Michael Rees in Chicago, have publicly announced that they have abandoned twilight sleep because it has proven inefficient and dangerous.

Dr. Somers referred to nitrous oxid and oxygen analgesia in obstetrics as a western product. It is true that Clarence Webster and his associates have taken the initiative in promoting its application but it is equally true that the east, the far west, the north and the south have adopted the method in a very general way until now it may be said that the method has gained wide spread favor throughout the entire country.

The American Gynecological Society last May in Washington presented a symposium similar to this and I think without a single exception nitrous oxid was extolled as one of our most valued methods of relieving the pains of labor. In this symposium Edgar advocated the use of nitrous oxid gas alone rather than in combination with oxygen.

I am well aware that the apparatus is cumbersome for the general practitioner to carry from house to house and I would not be understood as advocating its general use. My object in presenting this paper to a society composed largely of general practitioners is to call attention to a method of obtaining painless labor in a safe and efficient way. This method has been found altogether reliable in the hands of many of our prominent obstetricians and will doubtless come more and more in favor with the general profession.

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Injuries of the Head.*

F. A. Long, M. D., F. A. C. S., Madison.

The importance of this subject warrants its introduction at this time. The possibility of the occurrence of head injuries in the routine of the general practitioner must not be lost sight of. Intelligent surgical care is here of preeminent importance. In order that my treatment of the subject may be concrete I shall cite a few cases from my personal practice.

Case 1. In 1912 a boy four years of age fell from an automobile as the car was passing over a rough road. The father, driver of the car, was returning from an errand with his four year old son standing in the tonneau. The rear door was evidently insecure, at any rate, the motion of the car passing over a culvert caused the boy to lose his balance and fall. The boy must have turned in falling in some manner so as to bring his head in front of the wheel. Several forces combined to produce the resulting injury.

First: The impact of the moving car wheel against the head.

Second: The creeping force of the rubber tire over the soft tissues.

Third: The weight of the heavy car passing over the skull.

The accident occurred nine miles from town. The father, with great presence of mind, took the child in the machine and as rapidly as possible drove to my office. When first seen the child's head, face and neck were covered with a mixture of blood and mud. The scalp was torn from a point $11\frac{1}{2}$ inches behind the upper lobe of the right

ear in an irregular line forward through the eyebrow to a point $\frac{1}{4}$ inch above the inner canthus of the right eye. The laceration extended from this point diagonally upward and backward to within 2 inches above the upper lobe of the left ear. The torn scalp was turned and pushed backward over the crown. A casual inspection revealed a fracture of the skull with separation. The child was stupid, but not wholly unconscious, pulse rather slow. A fellow practitioner was called in, the head shaved and otherwise cleaned, and the scalp wound enlarged to show extent of fracture. There was a depressed fracture of the right parietal bone near the anterior superior angle about one and one-half inches in extent of the trap door variety, depressed at least five-eighths of an inch at the greatest depth. The fronto-parietal sutures were rent asunder from the anterior inferior angle of the parietal bone on one side to the same point on the opposite side of the skull, the separation at the middle line being the full depth of the interserrations of the sutures. There was an irregular line of fracture without depression running posteriorly and downward from the depression in the right parietal bone, and also one running forward into the frontal bone, and another running posteriorly and to the left from the separated left parieto-frontal suture.

A little chloroform was administered and the depressed fracture trephined to allow elevation and inspection. The patient did not bear the anaesthetic well and alarmed my assistant who urged getting him off the table. The desperate nature of the situation helped me keep my poise and I worked on.

*Read before the Elkhorn Valley Medical Society, Norfolk, August, 1916.

Venous blood only appeared under the skull. The depression was elevated. Before pushing the interosseous sutures into place I passed a catgut ligature through the trephined opening and down to and out through the left angle of the separated suture, for drainage. Attempts to push the interosseous sutures back into place succeeded but partially. Anyone who has attempted this feat knows the difficulties it presents. The trephined button was not replaced. The scalp was replaced with much care and brought together with innumerable stitches. A ligature drain was passed under the dependent portion of the scalp and brought out on the left side at the lower angle as was the drain placed between skull and membranes of brain. It is needless to say that this work required several hours. After the operation the patient's pulse was 144, temperature slightly subnormal, and professional and lay prognosis, bad. Patient passed a quiet afternoon and night, pulse the next morning and up to 1 p. m. 144, when dry dressings were re-applied. At 3 p. m. pulse was 156 and temperature $100\frac{1}{2}$, at 7 p. m. pulse 168 and temperature 103. Patient very restless. Drainage had ceased. Head was redressed and the skull cap dressing kept wet with saturated boric acid solution all night. At 7 a. m. of the third day temperature was $99\frac{4}{5}$ and pulse 120. Ligature drain was removed. Wet boric acid dressing continued. Apparently the patient was improving. About the fifth day a portion of the scalp began to show loss of vitality, that portion running from 1 inch above the inner canthus of the right eye up to the crown, and eventually quite a loss of skin resulted, but the boy got well without an otherwise alarming symptom, and was as bright a child as one may wish to see. Skin grafting for the defect in the scalp was declined by the father. The family moved to Colorado and I have not seen the patient for two years, but his father assured me not long ago that he was perfectly well.

Cast 2. In 1915 a boy not quite four years old, playing 30 feet from the barn where hay was being unloaded with a power hay fork was hit on head by the hanger which carries the fork, and which is suspended to

a trolley. The hanger had broken loose while a fork full of hay was being hoisted. The family thought that only a scalp wound resulted and called me to dress it. Inspection at once revealed a fractured skull. An opiate was administered and the head wrapped in sterile gauze and cotton and the patient at once taken to my office. It happened that a trained nurse was on duty at my home and that another nurse had called that afternoon. Both were requisitioned for the emergency. The entire head was shaved, the wound enlarged under ether and a depressed fracture exposed. The bone was depressed in the right parietal region probably $\frac{3}{4}$ of an inch, the size of the fractured area being about one by one and one-half inches, and of the trap-door order. It was possible to pry up the depressed bone with an elevator. The scalp wound was closed over a ligature drain which was removed in 24 hours. This child recovered without an untoward symptom.

Case 3. In 1908 an eight year old boy was kicked by a horse, resulting in a depressed fracture about two inches behind the ear. He was picked up unconscious and remained unconscious and very restless. I shaved the scalp, enlarged the wound, removed the fractured bone which was depressed and badly fragmented, put in a ligature drain and closed the scalp wound with the handicap of no assistance and a poor light (it was evening). The patient never regained consciousness and died on the fourth day.

Case 4. About ten years ago two railroad hands were digging a cistern for storing water for the locomotives. One called the other a liar and the second instead of calling him another, hit him over the left eye brow with his shovel. There was a scalp wound down to the supra-orbital ridge $2\frac{1}{2}$ inches in extent, but the bone was not injured. Blood came from the nose, mouth and ears. It seemed evident that a fracture of the base of the skull had occurred. The skin wound was brought together. The nose was cleansed with alkaline solution and the ears with peroxide and both nostrils and ears lightly packed with sterile cotton. This care

was repeated twice daily for ten days, when the patient was removed to his home at Grand Island. Apparently, recovery was progressing satisfactorily.

Later this man developed symptoms that lead him to consult Dr. Harold Gifford and as the later history of the case has considerable interest owing to the rarity of its occurrence I will append Dr. Gifford's letter, of recent date.

July, 1916.

"The history of this case in brief is as follows: He was struck on the left side of his head with a shovel and within a few days developed a pounding noise in his head, with beginning exophthalmos of the left side.

"The noise and discomfort increased until it was almost unbearable.

"I found he had a typical case of traumatic pulsating exophthalmos, and in the endeavor to relieve this, Dr. Jonas tied first his internal carotid and then the external carotid. This relieved a good deal of the noise, and to some extent the exophthalmos, but after a year or so the latter increased, the conjunctiva and skin of the lids became enormously oedematous so that the upper lid hung down over the cheek half way to the mouth, suggesting a malignant growth. He also had terrific pain in the left orbit and left side of his head. I then cut into the orbit below the eye-brow, and found a dilatation of the ophthalmic vein somewhat pyramidal, an inch across at the base, tapering down toward the apex of the orbit. This I removed. I ligated the vein and removed the enlarged portion which was almost filled with clotted blood. He immediately recovered from his oedema and pain, but suffered from operative paralysis of the superior rectus and oblique muscles, for which he had a ptosis operation some time later. Since the vein was ligated, he has had no further trouble with exophthalmos, noise or pain in the head, but he still has a moderate degree of ptosis and some diplopia."

H. Gifford.

Some Conclusions from One Hundred Operations for Cholecystitis.*

C. H. Newell, M. D., Omaha.

In inaugurating a discussion upon this subject we realize full well that we can make no claim to originality, for the literature at the present time is, and for several years just passed has been, full of the subject. This very fact, however, would seem to indicate that the subject is as yet unsettled and requires further observation and discussion. Let this then be our excuse for this paper.

It seems too bad that we are not of a more uniform opinion upon the subject of cholecystitis when it is the second most common chronic inflammatory lesion of the abdomen. This, however, is perhaps not so surprising when we know that the same situation obtains relative to the most common inflammatory intra-abdominal lesion, namely appendicitis.

Let us hope that after the pendulum has ceased to oscillate between cholecystectomy and cholecystotomy, it will come to rest upon a safe and sane middle ground and give us data upon which to more rationally base our choice, and to select whichever operation seems to be indicated under the circumstances. Ten years ago Richardson said "the one established fact in biliary surgery is that cholecystostomy should always be done." To-day I need hardly cite authority for the almost diametrically opposed view.

As indicated above we wish to present a few general conclusions from a series of one hundred operations for cholecystitis done in the Nicholas Senn Hospital by Dr. A. P. Condon, or the author, in the last three and one-half years.

Let us first remind you of the fact that the gall bladder is in its fundus poor in lymphatics and almost devoid of sensory nerves; it is better supplied in its neck and most richly supplied with both at its extreme lower end, as are also the ducts. Further, that there is a chain of lymphatic glands along the cystic and hepatic ducts which glands are always enlarged in the presence of any considerable degree of infection. All this being of great importance in arriving at diagnosis as to just what pathology lies within the abdomen and later of choosing the type of operative procedure.

It is fairly well established that the infection of the gall bladder takes place in one of four ways; first, through the portal circulation, the organisms escaping the bactericidal action of the liver and finally arriving in good condition in the gall bladder, via the hepatic and cystic ducts; second, via the papilla of vater, indeed an ingestion of carmine has been followed by the appearance of the dye in the drainage of a cholecystos-

*Read before The Nebraska State Medical Association, Omaha, May, 1916.

tomy; third, via the blood streams and finally by direct contiguity of tissue from the neighboring structures.

In this connection Mayo has cautioned us to remember that the mucous membrane of the gall bladder is vulnerable to infection from behind as well as upon its surface.

We must now turn for a moment to the physiology of the gall bladder and decide whether or not it is an unnecessary organ, as is the appendix, or has it the property of secreting something other than mucus? Upon the answer to this question much will depend when deciding whether to do a cholecystectomy or a cholecystostomy. Mayo says, as do most advocates of almost routine cholecystectomy, that the function of the gall bladder is an unnecessary one.

Wohl, however, tells us that the solids in the bile of the gall bladder are at least eight times as great as those of the bile in the hepatic duct, and we know, too, that the flow into the intestine is more rapid after ligating the cystic duct, and could agree with the theory that a very important function of the gall bladder is to supply a bile thick in character, which when mixed with the liver bile retards the passage of the latter into the duodenum.

Further, it has been shown in dogs that there is a definite nervous relationship between the gall bladder and the ampulla of Vater; the latter being closed or opened by nervous impulses from the gall bladder. In many of these cases it was found that the Vaterian ampulla remains permanently open following cholecystectomy. We know, too, that there is a definite relationship via the nervous system between the gall bladder and stomach.

Granting that the foregoing is largely experimental and perhaps as yet largely theoretical, there remains sufficient evidence to warrant us in conserving some of the gall bladders which we have been wont to remove. Especially when Hohlweg has shown that in seventy percent of patients who have suffered removal of the gall bladder one finds permanent hypo or anacidity.

Our series has served to impress upon us some interesting points in diagnosis of chol-

ecystitis, some of which are perhaps not mentioned in the text book picture of the gall bladder patient who is fair, fat and forty.

Babcock and others have chosen to group cases of cholecystitis into three stages. First, that stage of indefinite reflex or toxic symptoms in which the appearance of the gall bladder when seen at operation leads the surgeon to believe that he has made an error in diagnosis. This stage usually continues for fifteen or twenty years until the onset of the second stage at about thirty-five to fifty-five years, this the stage of acute local biliary symptoms; and finally the third stage, or stage of severe complications such as empyema, gangrene, pancreatitis, etc.

This being the case, we must no longer look with suspicion upon a diagnosis of cholecystitis in a patient under thirty-five years of age, but rather should strive if possible to make our diagnosis in the first stages, it being a well known fact that few cases reach us before the so called second stage.

In our series the ages of the patients were as follows: under thirty-three years, sixteen cases, the youngest two being one at eighteen without gall stones, and one at twenty-four with many gall stones; over fifty years, fourteen cases, oldest sixty-five years; between thirty-three and fifty years, seventy cases; third stage, or stage of severe complications, seven cases.

Many of the cases are easily confused with other intra-abdominal lesions, especially appendicitis and duodenal ulcer, and one can readily see how this could be, inasmuch as many cases of appendicitis and cholecystitis occur concomitantly.

Wohl and Babcock report this finding in fifty percent of cases of a series in which the findings were based upon a microscopical examination. Mayo has shown that appendices and gall bladders may be, and very often are, involved secondarily to the same primary focus, most often in the mouth. These facts just mentioned have an important bearing upon the therapy of the condition which we shall discuss later.

The confusion in differential diagnosis of cholecystitis and duodenal ulcer is due largely to the subjective symptoms, the character

of the pain, its relation to food ingestion and the chemistry of the stomach contents, which occasionally in cholecystitis present a marked hyperacidity—(seven percent of our one hundred patients had a total HCL of eighty or over). Finally, clinically some patients suffering from a cholecystitis, learn to relieve their pain by ingestion of soda, just as in cases of ulcer.

We have seen at least two cases which came in complaining of distress in the left upper quadrant, and in one an inability to retain food after ingestion. This woman had lived for nearly two months upon liquid food and was nearly exhausted. In both cases all the usual radiographic and laboratory findings, objective and subjective clinical symptoms, except this pain in left upper quadrant were absent. In each case a cholecystostomy relieved the condition and both patients are again entirely normal clinically. Stones were found in both cases. We also saw one similar case, upon which an exploratory laparotomy was done by another surgeon, the gall bladder was drained and the patient was relieved of his symptoms.

The relationship of the pathology in the gall bladder to the chemistry of the stomach mentioned above is more than a mere incidental one. In our series we have succeeded in many instances of prognosticating the amount of gall bladder pathology by the degree of hypoacidity of the gastric contents. This was first suggested to us about two years ago, and after careful observation we believe that the more nearly the gall bladder is put out of commission the less will be the gastric acidity. That is to say, if the gall bladder is sealed off entirely (a hydrops), entirely full of stones or very much thickened and shrunken, the gastric acidity will approach and indeed often attain the zero point.

Mayo suggests that the hypo or anacidity when present is due to a coincident pancreatitis which markedly increases the duodenal contents, thereby lessening the acidity of the stomach, this being possible of course only if our English co-workers are correct in assuming that the degree of gastric acidity

depends upon the regurgitation of duodenal contents.

The gastric findings in our series were as follows:

Free H Cl of 40 or over.....	8 cases
Total acidity of 80 or over.....	6 cases
Free H Cl of 20 or less.....	11 cases
Total acidity of 50 or less.....	8 cases
Total absence of Free H Cl.....	5 cases

The leucocyte count has proved of value here but in a lesser degree than in some other acute abdominal lesions. If a diagnosis of acute cholecystitis is made and, as is often the case, one is in doubt as to the advisability of the operative interference, we believe an increasing polymorphonuclear count should speak for interference; of course, one has here the clinical symptoms to corroborate the leucocyte count. Indeed one is often justified in operating an acute cholecystitis for a progressively enlarging mass in the gall bladder region; endeavoring thereby to prevent an intra-abdominal catastrophe in the nature of a ruptured gall bladder. This question of when to operate an acute cholecystitis is, of course, a most difficult one to decide and one may say only that such a patient, who, clinically or otherwise, is getting progressively worse should be operated.

The temperature in cholecystitis is important and aids us in locating the lesion, the ducts being most richly supplied with lymphatics. An involvement there will produce a very much higher temperature (104 to 105 degrees) than will a lesion higher up, and it follows of course for the same reason that a patient with such a lesion will illy withstand operative procedures and one should carry these patients, unless absolutely contraindicated, to the interval. It is said that diarrhoea when present indicates that the individual has already developed a pancreatitis. In our series this observation was not made and we are inclined to attribute this finding to the lessened H Cl in the stomach.

Relative to the pre-operative treatment of these patients, we can only emphasize some of the points recently brought out in this connection. First of all, our patients are put to bed and for two days, unless acute cases, requiring immediate operative attention, they are thoroughly alkalinized. We all realize, of

course, that many of these cases are rather poor risks and nothing should be left undone which will tend to give the patients a better fighting potentiality, and as Crile says, we may sometimes be fortunate enough "to just save a patient who otherwise would have just barely died." They are given glucose, calcined magnesia, bismuth subcarbonate or sodium bicarbonate. In addition, the alimentary tract receives some attention in the way of enemas, cathartics or whatever seems indicated. During this time an attempt is made to get the patient familiar with his surroundings and to make him feel that he is surrounded by attendants who are interested in his welfare and are capable of attending to it, and that the surroundings are such as to assure him the best possible service.

This is all of the pre-operative treatment unless the patient is jaundiced or runs a continuous elevation of temperature. In the former instance, the patient is observed until the jaundice has largely disappeared, if such is possible, and in the meantime if it is of a marked degree, he is given Calcium Chloride in 15 grain doses with the hope of lessening his tendency to hemorrhage at the time of operation. It has been our experience, however, that the probability of severe hemorrhage, because of presence of jaundice, is much overestimated. We have never seen such a case. Indeed, we believe that one may neglect this preoperative therapy, proceed surgically as indicated and in the event of a severe hemorrhage feel secure in the use of the Kocher-Fonio "Coagulin."

This brings us to the operative treatment of the condition and I should feel guilty did I not mention briefly some of our observations as to the proper method of anaesthesia. We have tried carefully all methods described and while having had no untoward immediate results, feel that some of our deaths may have received the proverbial straw, in the injury to their kidneys incident to the ether narcosis; in other words, that the anaesthesia may have been sufficient to just turn the scale to the unfortunate side. Chloroform narcosis naturally needs no discussion in this connection. It is probably very seldom if ever used and I might add, by us, never.

We did think that Crile's method of combined anaesthesia with Novocaine locally and the use of the Nitrous Oxide-Oxygen combination was ideal, and do believe it to be very superior in every respect to etherization, but we have recently modified it somewhat and at the present time proceed as follows: about one-half hour before operation the patient is given all or part as indicated of a hypodermic injection containing morphine grain 1/6 and scopolamine grain 1/150. The patient is then brought to the operating room and the line of incision well infiltrated with 1-300 or 400 Novocaine and adrenalin and the incision made. Up to this point, namely until the abdomen is opened, the local anaesthesia is in all subjects sufficient. As mentioned above, the fundus of the gall bladder, because of the paucity of its sensory nerves, may be incised with impunity, the patient suffering no pain (without even local anaesthesia, of course). If then the gall bladder comes well up into the incision the operation may be completed without further anaesthesia. However, if it is necessary to make traction the patient will suffer severe pain which cannot well be relieved by local anaesthesia. At this time Nitrous Oxide-Oxygen anaesthesia is given just long enough to attend to the gall bladder and then discontinued, the closure being made with the parts under the influence of the local anaesthesia.

In this manner it is many times possible to do the entire operation under local anaesthesia and at the worst only a very few moments of general anaesthesia and we feel that this procedure may occasionally be a factor in lessening the mortality. Moreover, the post-operative emesis is in all cases very much lessened and usually absent, this is conducive not only to the comfort of the patient, but to fewer post operative complications.

Most of us agree, I take it, that all cases of cholecystitis sufficiently severe to warrant continuous therapy should be operated by one method or another. We all agree too, I believe, that the mortality in this class of patients will be materially diminished when the cases are operated in the first and early second stages, and that procrastination offers little if any advantage. We know that many patients subjected to proper non-surgical

therapy are enabled to pursue a fairly comfortable and satisfactory course, but after all we are simply assisting them to tolerate a chronic inflammatory process until such time as permanent changes and a definite recognizable pathology has been instituted. The patient must finally seek operative relief, with a greatly diminished possibility of permanent relief and with the necessity of facing a much higher mortality. Upon this much, as I say, we can fairly well agree but possibly not so well upon whether to do a cholecystectomy or a cholecystostomy. We are influenced by our series to sum up the situation relative to this question in a few words as follows: cholecystostomy should be the choice much more often than is now the general practice; this for the following reasons:

First, it is much more simple technically than is cholecystectomy, and all other things being equal the mortality of the latter will be higher.

Second, it is not proved conclusively by any means that the gall bladder is an unnecessary organ, and we do see patients who have permanent hypo or anacidity following cholecystectomy.

Third, it is a sound surgical principle that in a poor risk, as for instance, one of our third stage cases, the least anaesthesia possible consistent with doing sufficient to relieve the immediate stress, is to be advised. Hence it is, we believe, poor surgery to subject severely complicated cases to cholecystectomy.

Fourth, if later on a cholecystostomy proves insufficient, the other may be done at any time and this we found to be necessary in one case. This case was, however, in much better position to stand the cholecystectomy than at the time of the first operation.

Fifth, it is at least worthy of consideration, that many insurance companies today refuse applicants who have been subjected to cholecystectomy, whereas they insure individuals who have had the other operation.

Do not understand us to mean that cholecystectomy should not often be done. In cases where the pathology of the gall bladder is such that the possibility of its being reestablished as a normal organ is very slight

and if the patient is in fairly good condition, then it should be the operation of choice. We do, however, think that to do a cholecystectomy without such evidence and only because of a moderate degree of infection is wrong. A recent report from the Mayo clinic states that 43% of their cholecystectomies were patients without stone. We all know from experience that many such patients do obtain permanent relief from cholecystostomy.

After the operation is done, or I might add, better yet before deciding upon operation, one must think of the possibility of having to deal with a metastatic infection, usually secondary to a focus in the mouth or throat, and of instituting procedures relative to the primary focus.

Before closing the abdomen in gall bladder operations we feel the appendix should be removed, unless there is some contra-indication, such as the condition of the patient or his objection to its removal. It requires but a few moments; its removal is attended with so little danger, and its non removal so fraught with danger to the patient, that we make it a routine to remove the appendix in every laparotomy, unless as we said before there is some contra-indication. In gall bladder lesions the appendix is so often involved that it is doubly essential to remove it.

We have not much to say relative to the technique of the operation. We no longer invaginate our gall bladders in cholecystotomies, simply tie a suture around the gall bladder with the tube in position and then anchor it to the abdominal wall by sutures so placed that they prevent the ligature around the gall bladder from slipping.

Most cases of cholecystectomy should be drained. Some men, however, have the temerity to close without drainage if their haemostasis is perfect and if they feel sure that there will be no escape of bile either from the ducts or the traumatized liver. In one case we closed without drainage when the gall bladder happened to have a mesentery and its removal was not attended by trauma to the liver.

It has been said that the tying off of the

cystic duct is very difficult and that the ligature often slips off. I believe that this very seldom happens and that when it is supposed to occur what really happens is an oozing of bile from the traumatized liver tissue.

In discussing the mortality of gall bladder operations we may all feel encouraged that the later statistics show a very marked improvement for both operations; this is explained by Babcock who reports 114 cholecystectomies in first stage without a death by saying "the surgeons are learning not so much how as when to operate gall bladder patients."

Our series was attended by a mortality in the one-hundred cases of fourteen percent; of our seventy-three cholecystostomies, five deaths or 6.8%. We are not proud of our mortality of thirty percent in 27 cases of cholecystectomy, but can say only that formerly we attempted cholecystectomy on patients whom we would now subject to the other operation, and that our mortality now, like that of some of our confreres, is much less.

Immediate Repair of Perineal Lacerations.*

B. R. McGrath, M. D., Grand Island.

Two things contribute very largely to the support of the gynaecologists. They are the gonococcus and careless handling of obstetric injuries.

A half century of teaching has convinced obstetricians that tears of the pelvic floor are not to be neglected, but this teaching has not been so definite and convincing that secondary operations are no longer necessary for repair of the perineum. We still have to deal with cystoceles and rectoceles. There are still many cases of uterine prolapse. Some of these cases have had lacerations that were not discovered at the time they occurred. Many others were stitched but without results.

Physicians practicing obstetrics expect a percentage of lacerations; they also expect to repair these lacerations when they occur. It is evident, then, that this part of obstetric work is not well done. De Lee states that all primipara and many multipara suffer

from injuries of the parturient canal. The average frequency of laceration of the perineum from statistics of various authors, is about 25%, and in forceps cases, about 75%. This frequency is enough to make the operation of primary repair merit our most careful consideration and conscientious work. Success means complete recovery after confinement with no prolongation of the period of convalescence, failure means ill health for life or the expense and discomfort of a secondary operation. So much depends upon the success of the operation that it certainly should not—as is often done—be hurried through under most unfavorable conditions. The work is frequently done almost in the dark, on a bed, without anaesthesia, or worse, with a struggling, half-anaesthetized patient, with no means of keeping the field of operation sterile.

Patients who have had stitches taken for repair of perineal lacerations present a great variety of conditions. In a great many there is little or no muscular union. Sometimes a tear of the external sphincter has been overlooked. In some, merely a bridge of skin hides the deeper destruction. Some cases have had one laceration drawn together and others overlooked.

For successful primary repair, as well as secondary repair of the perineum, a working knowledge of the anatomy of the part should be at hand. It should be remembered that the posterior wall of the vagina is supported by the perineal body, a wedge shaped formation of fat, fibrous tissue and muscle fibres placed base outward between the rectum and the vagina. The perineal body has been called the keystone of the arch of pelvic support. It should be remembered that, while this organ has its part in the support of pelvic structures, it is not the most important organ in that support. The levator ani muscles with their extensive origin from the pubic and ischiatic bones and from the pelvic fascia are spread out like the wings of a butterfly and sloped down like them to the central tendonous raphae. In the notch between these wings are slung the rectum and vagina, a few of the fibres, Luschka's fibres passing between. In front of the rectum the triangular ligament and transversus perinei mus-

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cles furnish support for the pelvic structures. The external sphincter and the sphincter vaginae blend with them.

Pelvic tears are always through muscles and fascia. They may be through the vaginal wall and skin or they may not be. They may be very straight and regular or they may be most irregular. The vaginal wall may be torn in many places and in many directions at the same time. It is not easy, sometimes, to trace out all the angulations and extensions of a laceration with the most favorable light and position. It is evident then that to determine accurately the nature of a pelvic laceration a better light will be needed than that furnished by a small kerosene lamp with a smoked chimney; and a better position will be required than can be secured with the patient in the middle of a low bed. Nothing can be seen when a stream of blood is pouring over the lacerated area. Successful repair of a lacerated perineum depends more on good careful inspection than any other one thing, therefore if good inspection cannot be made immediately following delivery the inspection and operation should be postponed for more favorable conditions. With a pack inserted into the vagina to control the flow of blood which obscures the field, and with the patient on a table where good light illuminates the field of operation, a deliberate and systematic inspection may be made. It should be determined what injury there has been to the vaginal wall; what muscles have been torn and where the torn ends are located; the condition of the perineal body, and the condition of the rectal wall. If this inspection has been accurately carried out, the most important step toward successful repair has been accomplished.

There is no set operation for primary repair. After scars have formed, muscles have retracted and healed, and the perineum has become a thin septum, a certain operation may be applicable to practically all cases, but the fresh case with clefts and fissures of all shapes and depths cannot be so handled. The angles of tears in muscles should be matched together, and stitched with a sufficient number of interrupted chromic gut sutures to hold them in close apposition. If the tear

in the vaginal wall and skin is not large enough or of such shape that this can be done, it should be enlarged with scissors. The sutures should be inserted into muscles with deep bites of a non-cutting needle. The ends of the torn sphincter should be pulled out of the pockets into which they retract and carefully united in their whole breadth. When clefts in the muscle and perineal body have been closed, a running stitch of fine cat gut may be used to close the vaginal and skin coverings. If additional stays are thought necessary, silkworm gut stitches may be passed deeply around the laceration and tied outside of all. If the torn tissues have been carefully approximated by cat gut sutures silkworm should not be necessary. When the operation is completed the sling running back of the rectum formed by the great levator ani muscles should be fully restored. The rectum is completely surrounded by its sphincter. The wall, if torn, is approximated by fine cat gut stitches which do not penetrate to the interior. The posterior vaginal wall should be supported by a restored perineal body of normal depth and thickness. Only by careful, painstaking work can these results be brought about. In cases of old unrepaired laceration where a fresh laceration has occurred I do not think one need hesitate to split the covering sufficiently to make the repair complete.

The only excuse for this paper, which contains nothing new, is that our results are not what they should be in primary repair. Forty years ago T. Gailord Thomas wrote: "It is my conviction that a very large number of cases of uterine disease take their origin in the lying-in chamber and a large proportion of these in unrepaired cases of lacerated perineum. When immediate operation becomes the rule of obstetric practice, the number of cases of disease thus occurring will at once and very decidedly diminish. But the full results of immediate operation will never be exhibited until the obstetrician studies the anatomy of the part and learns how to approximate its entire divided surface by sutures carried up to the highest point at which solution of continuity has occurred."

This was written at a time when many considered perineal lacerations of little significance and repair seldom necessary, but I can offer nothing better at the present time.

Methods Which May Be Employed to Avoid Open Operations for Fractures.*

John P. Lord, M. D., F. A. C. S., Omaha.

The X-ray and modern operative technic has revolutionized the treatment of fractures. Radiography has made necessary approximately anatomic reductions. A perfected technic has supplied the means but its brilliant results have over emphasized the operative side. The failures and disasters are seldom reported, but are nevertheless frequently met. Indeed some surgeons now testify to removing more plates than they put in. The time has seemed opportune, therefore, during the last year or two, for a reconsideration of the treatment of fractures.

The laity is obsessed with the idea that fractures must receive attention immediately. Their penchant for immediate service, from a doctor, causes them to be indiscriminate, oftentimes, in their choice. I sometimes think that doctors have become possessed with these same ideas of urgency. Of course I recognize that attention in reasonable time is usually desirable, but, immediate reduction in simple fractures is seldom actually necessary. Indeed there are many cases in which delay, even for several days, is desirable. The reaction from the trauma is over, swelling becomes reduced, blistered surfaces may be healed, muscle spasm reduced and pain lessened. The anxiety and tension of the patient becomes relaxed and deliberate action may be taken by the doctor. Repeated attempts at reduction may be made within a ten day period, during which time frequent X-ray observations may be made, valuable information gained, and no particular harm done by this amount of delay, and with careful attention to the art of mechanic reduction, success may finally be attained, where less deliberate care and attention to detail, would have rendered imminent the necessity for open operative interference. Many of our best authorities have come to the belief that no fracture, unless compound,

should be operated before seven to twelve days.

The people should be made to understand that accurate repositions are frequently impossible by manipulative reductions and that functional results are not dependent upon them. They should also be advised of the uncertainties of results after operative attack, and should be asked to share in its risks. In skilled hands and proper surgical environment the risk is indeed slight, but until there is less promiscuous operating, bad results are sure to be frequent.

It is probable that direct fixation methods, less formidable than plating, such as the more general use of removable nails, staples, and the Hawley, Parham or other clamp, will more frequently supplant the more deliberate procedures. The use of steel pins, as recently detailed by Foster of New Hampshire, the special drills of Wyeth, and of ordinary finishing nails, used by many (but especially popularized by Murphy), are means of fixation which are simple and efficient in a considerable proportion of cases, especially fractures about joints. Their intelligent use spares many cases from the more formidable open operations, the number of which have been obviously too great in recent years. In this new field, operators with limited experience and inadequate assistance, and facilities, have too often been gaining operative experience at the expense of their patients.

"Zimmerman recalls an eminent surgeon who had devoted special attention to the treatment of fractures and other bone lesions, and at the same time had achieved brilliant results in abdominal and general surgery. Certain of his competitors applied the undesirable epithet to him of "bone surgeon" with the view (as he thought) of detracting from the value of his work in other directions. He remarked at the time, "They will live to see the day when they will be glad to have the title (bone surgeons)." His prediction has come true, for the treatment of bone lesions is today the most difficult of all surgery, requiring a technical skill scarcely known to the abdominal surgeon of twenty years ago, and possessed by comparatively few of the present." (1).

*Read before The Nebraska State Medical Association, Omaha, May, 1916.

(1) American Jour. of Surgery, Mar. 1915.

The writer ventures to compare the recent furor for operating fractures, to the period when surgeons were making their operating reputations in removing ovaries of only questionable pathology. It requires a decade or two to develop sanity, in the indications and limitations for any operative procedure, among the majority of operators.

Gibbon advocates aiming at overcoming the indications for operative treatment by a perfection of mechanical measures and resources and improving the operative technic of plating when it is necessary.

There is a distinct and unquestioned place for open operations for fractures. Briefly stated, (Zimmermann) the indications for the open treatment are as follows:

- (1) In fractures of the shaft of long bones, where reduction cannot be secured by the closed method, or if secured, cannot be maintained.
- (2) Where there is interposition of the soft parts.
- (3) In spiral fractures of the humerus and femur.
- (4) In cases of multiple fractures.
- (5) In fracture with marked rotation of the fragment.
- (6) Fractures of both bones of the leg or the forearm—in these fractures unsatisfactory results are often-times secured by the closed treatment, and the open method is to be advocated with plating of either one or both bones.
- (7) Fractures in or near joints where the fragments or joint surfaces cannot be brought into proper position to secure anatomical alignment and physiological results. Malposition or detachment of fragments, in the region of joints, usually indicates an excessive amount of callus, and the method which will secure the best apposition of the fragments should be adopted. In many cases this can be better secured by the open rather than the closed treatment."

In highly specialized hands it is a very safe and sure means of securing anatomic correction. Yet there are failures in the best of hands, necessarily. There are too many operative accidents and complications among those limited in experience, and in surroundings, lacking organization, team work, and equipment. Relatively few hospitals are surrounded by an aseptic chain of operating room technic, every link of which is equally strong. The small operating teams doing good work in abdominal surgery, become weak and inefficient in coping with a comminuted fracture of a thick thigh.

When burying foreign non-absorbable material en masse, in the living tissues we are inviting trouble, and it is bound to challenge us in a proportion of cases.

About fifteen years ago the writer, in his teaching and discussions, began pleading for abandonment of the practice of the indiscriminate and frequent use of wire in compound fractures, urged simplicity of procedure and the use of a minimum of foreign material, when used. To carry out this principle "adjustable loop splints" were devised and used, in interrupted plaster casts. These permitted readjustment at any time, without disturbing the plaster. These are especially useful in compound fractures, most of which may thus be treated without the introduction of foreign material. And at most a ligature of catgut, or a temporary nail.

The use of awl or drill to work into position small fragments or dislocated small bones, has been a resource of value in my hands for several years. In some cases where the extension cannot be made adequate, it would be better for the doctor, inexperienced in operating upon fractures, to do tenotomies instead.

In compound, complicated or irreducible fractures, the attendant should offer the patient the choice of having expert council, being referred to a surgeon, or to be given to understand that he is to bear his share of the burden of responsibility.

There has been a recognized need of crystallized opinion on most of the points in the treatment and handling of fractures. This is evidenced by the very numerous contributions on this subject in recent months. The American Surgical Association has been conspicuous in its efforts in this direction. A symposium covering the various (2) phases of the subject was a large feature at their meeting last year. These discussions gave a distinct note of disapproval of too frequent open operations. Necessity for a more definite working basis in treatment of fractures, has been recognized by many surgical organizations.

The collection of statistics by the British

(2) Amer. Jour. of Surgery Mar. 1915.

Frac. Com. and the work of the American Surg. Ass'n. have revealed a sad lack of detailed reports of hospitals and individuals. Efforts at reform in this, have already been instituted, but until full, accurate, and definite reports are made upon vast numbers of cases, experience tables of value cannot be expected.

Robert Jones in his presidential address on the present treatment of fractures, before the British Medical Ass'n. summarizes these conclusions.

1. "We should be carefully taught the principles governing the reduction of fractures and their correct fixation.

2. We should not be out and out adherents of an operative, a fixation, or a mobilizing school. We should be shown the value of a steady fixed extension in contradistinction to forcible intermittent pulls succeeded by periods of relaxation.

3. Delayed union in a certain proportion of cases is inevitable. Care must be taken not to carelessly relegate such cases to the more serious ununited fractures and insist on plating.

4. Perfection of mechanical methods, lessens indications for operation.

5. Indications for operation differ with the individual stand point of the surgeon, no rules can be laid down. The surgeon with least mechanical resource will operate most frequently."

It may be said that there is now a distinctly greater conservative tendency and if operative procedures are resorted to they are made more simple.

The inlay autogenous bone graft is now perhaps universally employed, by those best informed, in cases of non-union of bone. Whereas but a few years ago a Lane plate would have been used.

The practice of allowing fractures to drift into the hands of internes and inexperienced assistants, is fortunately lessening. The general surgeons awoke to the importance of fracture treatment during the operative mania for plating everything. Now I think that all are more sane in giving the real detail attention necessary in the successful handling of fractures, and operating only in the exceptional cases in which the necessity for direct attack is obvious.

For years it has been my custom to tell my students and to warn general practitioners that a thigh fracture is of major import-

ance and that those without training and experience should seek skilled help.

The X-ray has properly emphasized the bad work in fracture treatment. It has called attention to a neglected field in surgery. The terms physician and surgeon, so meaninglessly and loosely applied to every graduate in medicine, is an onus borne by us all. The truth is that many doctors are no more fitted to treat fractures than they are to do other surgery for which they are wholly unfitted. The time is not far distant when special qualifications will be exacted of all who do any kind of surgery. The X-ray is beginning to render cautious all who presume to handle fractures.

A discussion of extension before this society is confessedly elementary and even academic but I feel constrained to state that failure to correct over-riding is most often the result of the inadequate application of this factor in the mechanics of treatment. The grasp of this principle and its proper application would remove the necessity for operations in a very large proportion of the simple fractures in the long bones.

Starvation Treatment of Diabetes.*

Rodney W. Bliss, M. D., Omaha.

It has long been known that periods of near starvation have lessened the amount of sugar excreted in the urine in diabetic patients, but the clinician has feared an acidosis if the starvation be absolute and prolonged. Guelpa used periods of starvation for many years and reported excellent results not only in diabetes, but in other types of intoxication. In his book published in 1910 on auto-intoxication and dis-intoxication he summarizes a number of cases, among them being several cases of diabetes mellitus. His work was entirely empirical, however, and was not based on animal experiments or accurate data. Periods of starvation in diabetes have been tried in the Presbyterian Hospital in Chicago and elsewhere for several years but the great advantages of this treatment were not presented to the medical profession until Dr. Frederick Allen of the Rockefeller Institute read a paper in Boston, December 2, 1914, in

*Read before the Nebraska State Medical Association, Omaha, May, 1916.

which he presented his views based upon a large amount of experimental work on dogs.

He found that if he did a partial pancreatectomy, with preservation of the pancreatic duct to avoid atrophy, that he could produce clinical diabetes in these animals, and he found further that he could vary the severity of the diabetes by the degree of pancreatectomy. He then found that he could absolutely control the condition of his animals and the amount of sugar in the urine by the proper diet. As long as the animals voided no sugar they were lively and strong, but if he allowed the sugar to persist, the animals ran a downward course of lowered tolerance, weakness and cachexia and finally death, and on post mortem he found marked degenerative changes in the islands of Langerhans. In the cases where sugar is prevented by a restricted diet, after killing the test animals, he finds no degeneration in the islands of Langerhans.

Based upon these experiments he selected forty-four patients, who came to the Rockefeller Institution for treatment of diabetes, selecting only severe cases.

Since Allen's first paper in 1914 and his later paper read at the meeting of the Association of American Physicians in Washington in May, 1915, many physicians have used the starvation treatment and all are enthusiastic as to its value. Billings says he heartily agrees with all Allen says. Boston immediately adopted its use, and Elliott P. Joslin has treated 211 cases from May, 1914, to May, 1915. His work comes from the Nutrition Laboratory of the Carnegie Institution of Washington in Boston, and I quote from him the following: "It is no exaggeration to say that the advance in the actual treatment of diabetes during the last twelve months just past has been greater than in any year since Rollo's time."

At the Massachusetts General Hospital many cases have been studied, and from there comes a brief manual by Hill and Eckman, in which the details of treatment are given as well as a very valuable set of diet lists. This little book first appeared in August of last year and a third addition has just been

published. The details of the treatment are essentially as follows:

1. The patient is put on a normal diet for 48 hours in order to determine the amount of sugar excreted on such diet, and the amount of ammonia, diacetic acid and acetone in the urine is determined thus establishing the severity of the diabetes.

2. The Initial Fast. The patient is then starved until sugar free; this taking usually from 24 hours to three days. If the diabetes is severe, whiskey or black coffee may be given. Whiskey, which was formerly considered a necessity in the treatment of severe diabetes, is not considered necessary by Allen or any of his confreres. Allen does not use alkalies as a routine, but only in case there is a high degree of acidosis, which in his experience is not common.

Practically all reports show that the acidosis is decreased by the starvation, and that there is little danger of the advent of coma during the period of starvation. There is of course a loss of weight, but such loss of weight is considered desirable, especially in fat diabetics. In most cases reported I find that the patients left the hospital weighing from three to five pounds less than their entrance weight. During the initial fast the amount of urine and the amount of ammonia should be recorded daily. Those who have had the most experience feel little concern as to acidosis unless the ammonia is running over three or four grams per day, the normal excretion being from .85 to one gram. For all practical purposes the formalin method of ammonia estimation is sufficiently accurate, although there are more accurate chemical methods. Determination of the ratio between the total urinary-nitrogen and the ammonia, the quantitative estimation of the acetone, diacetic and beta oxybutyric acid excreted and the carbondioxide tension of the alveolar air and the determination of the sodium bicarbonate concentration of the blood as shown by Stillman and Van Slyke are more accurate methods of measuring ketonuria.

During this stage it is found that the relief from distressing symptoms is marked—The pruritus is less, the polyuria is less and the thirst is less. The intelligent patient stands the fast with little difficulty. In the less intelligent class black coffee, clear soups, bouillons or whiskey may be given. Joslin has found that in very severe and long standing cases that he gets better results if he

first omits his fat, then in two days the proteins, then cuts his carbohydrates down to ten grams, after which there is a total fast.

When the patient has become sugar free the real fight for tolerance begins, and this is a difficult problem as it requires not only daily observation of the patient, but a knowledge of food values as well. Hill and Eckman's volume of diet lists is very handy as it gives food values in terms of household measures such as tablespoons, etc.

After starvation the aim is to increase the carbohydrates very slowly and yet give the patient bulk; hence the vegetable day. It has been found that if vegetables are boiled three times, the carbohydrates can be decreased about one-half. The following is a sample of vegetable diet containing carbohydrate grams 15, protein grams 10, fat grams 7, yielding a total of 200 calories:

BREAKFAST.

String Beans (canned) grams 120=2½ heaping tablespoonsful.

Asparagus (canned) grams 150=3 heaping tablespoonsful equals 13½ stalks 4 inches long.

Tea or coffee.

DINNER.

Celery 100 grams=6 pieces 4½ inches long.

Spinach (cooked) 135 grams=3 heaping tablespoonsful.

Tea or coffee.

SUPPER.

Asparagus 100 grams=2 heaping tablespoonsful, 9 stalks 4 inches long.

Celery 100 grams=6 pieces 4½ inches long.

Tea or coffee.

Following the vegetable day fat should be gradually increased in the form of bacon, butter, cream and olive oil noting carefully the caloric value and remembering that bacon fried loses about one-half its fat. Protein is then further increased and finally carbohydrates.

Inasmuch as our ketonuria is produced largely by the ingestion of protein and fat the urine must be watched carefully, not only for sugar but for evidences of acidosis as shown by the qualitative tests for diacetic acid and acetone and quantitative ammonia. A period of ten or twelve days is usually sufficient to get the patient up to the point of tolerance and if we can hold a severe case to an intake of 50 grams of carbohydrates

without sugar or acetone in the urine we are doing well and we usually stop a little short of the individual caloric requirement.

If the patient is kept sugar free his symptoms are much relieved, there is less polydipsia, less polyphagia; his neuritis improves; he is stronger, feels better generally and in one of my cases there was marked improvement in the diabetic gangrene.

Reappearance of sugar in the urine is always a signal for a fast day and some authors suggest one fast day in ten as a routine. A patient weighing 150 pounds, normally requires about 2300 calories. If in such a diabetic the sugar tolerance can be worked up to 60 grams, he should be given also about 75 grams of protein and 180 grams of fat, the total caloric value of which is 2220 calories. The following diet would yield that amount:

BREAKFAST.

Bacon 100 grams=4 slices 6 inches long.

Eggs 1.

Bread 30 grams=1 slice 3x3½ inches.

Butter 10 grams=1 square.

Cream 3 ounces=4 tablespoons.

Tea.

DINNER.

Broth 180cc.=1 glass.

Chicken 100 grams=1 medium serving.

Baked Potato 100 grams=1 medium potato.

Tomato 100 grams=2 heaping tablespoonsful.

Lettuce 25 grams=3 leaves.

Olive Oil 13 grams=1 tablespoon.

Cream as breakfast.

SUPPER.

Eggs 1.

Cabbage 100 grams=2 heaping tablespoonsful.

Celery 100 grams=6 stalks 6 inches long.

Onions 100 grams=2 heaping tablespoonsful.

Butter.

Tea.

Cream.

After the patient has been in the hospital for two or three weeks and has a 50 gram sugar tolerance and no evidence of an acidosis, he may become an office patient.

All he then needs is a pair of scales, which weighs in grams, an intelligent wife or cook, a test tube, an alcohol lamp, and a bottle of Haine's test solution, with proper instructions as to how to test his urine for sugar. He should test his urine and at the reappearance of sugar consult his medical adviser,

who will either lower his carbohydrate intake or advise another fast day.

Case 1—Mr. D., age 53, weight 150.

This patient was seen because of an inflammatory swelling of the leg at the site of an old fracture. Examination showed the leg much swollen, tender on pressure and red. X-ray picture showed a probable abscess. Patient was sent to the hospital where we found urine with a specific gravity of 1047 and 8% sugar. Both diacetic acid and acetone were present in the urine and the ammonia output was 1.85 grams in 24 hours. A subperiosteal abscess was opened under local anesthesia and the starvation treatment instituted for one day only. At the end of this day the ammonia increased and our patient developed deep respirations and died in coma in two days, even though carbohydrates were at once pushed and sodium bicarbonate was given in large doses intravenously. This case made me somewhat skeptical as to starvation not producing acidosis, but I find in the literature that the combination of pus infection with diabetes produces a toxemia which kills and which is not necessarily an acidosis. Carbohydrates were forced and alkalis were started at the time of entrance to the hospital and pushed to the limit 24 hours before the onset of coma, but with the result above stated.

Case 2—Mr. M., age 56.

Was called one afternoon because of water blisters suddenly appearing on the toes. The patient had a rotten apple odor to the breath and he was at once removed to the hospital where we found 5% sugar, diacetic acid and acetone present, and 2 grams of ammonia. Thirty-six hours starvation rendered him sugar free, and the tolerance was gradually worked up to 30 grams, when he again showed sugar. Twenty-four hours starvation again rendered him sugar free and his condition remained good although he showed continually from 1 to 3 grams of ammonia. The blisters filled up and he gradually developed gangrene of both great toes, which were always dressed dry. This patient has been followed for eight months—his gangrene has not developed—he has a tolerance of 40 grams which we keep by giving one fast day in ten. He is comfortable in every way, except for a slight neuritis and I am sure his occasional starvation is the reason he is still with us.

Case 3—Merchant, former weight 160, now 150.

He has had sugar in the urine to his knowledge for fifteen years. Has been under my care for three years and his tolerance was from 10 to 15 grams of sugar before I instituted fast days. He now has a tolerance of 60 grams, and he keeps at his usual duties, always testing his own urine every other day. He remains about 5 to 10 pounds under weight. He takes his fast days on Sundays when he can remain quiet and reports twice monthly.

Case 4—Retired engineer, age 57.

A fat diabetic—his weight when first seen was 260 pounds. He carried 2% sugar with positive

tests for diacetic acid and acetone. His ammonia has never been over 1 gram in 24 hours. His chief complaints were a persistent bronchitis, and a polyuria, polydipsia and a polyphagia. He voided 3000 C. C. when first seen. With fast days and with cutting down both his fats and proteins he has been kept sugar and acetone free and has lost 40 pounds in weight. He is stronger, feels better and has no troublesome symptoms whatever, except those produced by his bronchitis.

Case 5—W. H. B., age 34.

This case is one treated by my colleague, Dr. Manning.

He has known he had diabetes for six months—has never been fully free from sugar to his knowledge, since sugar was first found. Normal weight 130 pounds, lost 15 pounds in six months. Troublesome symptoms were pruritis and weakness. He was first put on hospital diet for one and a half days after which the starvation treatment was instituted. He was sugar free after 24 hours starvation. He was then given a vegetable day and the second day 10 grams of carbohydrates were given. For the first three days his ammonia ran up to $1\frac{1}{2}$ to 2 grams in 24 hours and then down to normal and he was sugar free at all times. His carbohydrates were gradually worked up to 120 grams and he is still taking that amount and the last reports show he is feeling well weighing 135 pounds, and that he has been sugar free ever since his initial starvation.

Case 6—C. H. C., age 29, former weight 220 lbs.

Case of my colleague Dr. Frank M. Conlin. About fifteen months before coming to Doctor Conlin the patient gradually lost weight. He had been seen by a number of physicians during the time but he never became sugar free. He complained of marked thirst and excessive appetite. On examination following hospital diet he had $4\frac{1}{2}\%$ sugar, no diacetic acid or acetone. He was put on 24 hours starvation and he became sugar free. Carbohydrates were gradually worked up to 60 grams of sugar in 24 hours without the appearance of sugar in the urine. He has been sugar free ever since his starvation day in January, and has gained back 20 pounds of his lost weight.

CONCLUSIONS.

1. Practically all except moribund cases can be made sugar free by fasting and their tolerance can be increased by occasional fast days.
2. A carbohydrate free diet does not produce ketonuria, but rather tends to decrease it.
3. Formerly patients were over fed on proteins and fats and acidosis was produced thereby.
4. We should reduce the weight of fat diabetics and not attempt to increase the weight of thin ones.
5. Patients can test their urine for sugar as well as we can.
6. Reappearance of sugar in the urine is the signal for a fast day.

(Continued on page 194)

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Public Health Legislation.

The season of the legislature will soon open with every indication favorable for progressive health legislation. The most important measure proposed for years will be introduced as a bill embodying the Fox recommendations for the organization of a State Health Department. Public sentiment so far aroused seems to be sufficient to overcome the natural consternation of the members of the legislature when changes are proposed in the existing order of things. While it is desirable for success that all forces work in harmony to mould legislation, there is one fundamental principle that can not be sacrificed or altered. The Fox report contemplates that the laymen Board of Health shall delegate its executive power to a Health Commissioner; that the Board of Secretaries continue as they now are—an advisory board and a board of examiners for physicians desiring a license to practice. No one denies the need of a complete reorganization in the present department, yet it is natural to expect that some opposition might arise from those who are holding at present some small authority. Progressive legislation must mean the sacrificing of all personal interest if the establishment of an efficient Health Department is to be.

At present by constitutional authority the Board of Health consists of three laymen. The Governor, who is chairman, the Attorney General and the State Superintendent of Public Instruction. The Governor appoints the Board of Secretaries, and to them the Board of Health has, in the past, delegated certain duties. If the Governor can be entrusted to appoint four secretaries he can, with the advice of these secretaries, be entrusted to appoint a Health Commissioner. Then there will be some one in authority to centralize executive duties. This will at the same time centralize responsibility. In all states where this centralization of responsibility and authority has occurred business-like efficiency has replaced the old condition of political chicanery and confusion.

Nebraska must not remain at the bottom of the ladder in public health matters.

The New Physiology.*

The old familiar observation that progress is not in a linear direction but takes a zig-zag course is again brought to mind by the recent address of Professor J. S. Haldane before the Harvey Society of New York City. We find in it a new aspect of the old doctrine of vitalism. Intensely interesting and thought-provoking as it is, we doubt whether many physiologists, chemists or physicians will unreservedly embrace the new doctrines. It would entail too sharp a break with an ingrained fundamental point of view, namely, that the explanation of biological phenomena will rest upon the laws of physics and chemistry—either known or to be known in the future. This implies that in biological phenomena we are dealing with the same materials and forces that hold sway in the inorganic world. To be sure, it may be admitted that physics and chemistry cannot explain life at present but refuge is found in the belief that the cause of this failure lies simply in the incompleteness of physical and chemical data and that as these grow the explanation will be forthcoming.

But Dr. Haldane makes the keen observation that the enormous growth in the application of physics and chemistry to vital

*Vide Science, Nov. 3, 1916.

phenomena has only served to reveal enormously greater complexities than were ever suspected. Furthermore, that the defenders of the mechanistic theory invoke entirely unknown properties—to be discovered in the future—in the physico-chemical explanation of life; the assumption being that our present point of view of physics and chemistry would forever remain essentially the same, which, in view of the later developments in electro-chemical phenomena and radio-activity is not admissable.

To emphasize this point it may be recalled that Verworn long ago in his "Allgemeine Physiologie," pointed out that after all the only real things in the world, the only facts that we could really be certain of, were those of the mind, or, in other words, states of consciousness and that eventually the world and the universe are but ideas. It would be rash to deny the possibility of the entire thinking world's accepting Berkeley's Idealism. On the other hand it may be a false point of view and in some such way Haldane regards the mechanistic theory as being a wrong point of view and an effort ultimately leading to a morass of difficulties. According to Haldane, then, physics and chemistry have frankly failed in explaining life and, show "no sign of being a success in the future." He finds refuge from this condition by openly abandoning the attempt "to ascertain the causes of vital activity but to track out its normal details * * *"

"The new physiology * * * is a physiology which deliberately and consciously pursues this line of progress, leaving on one side what one may call the 'causal' physiology handed down to us from the last generation. This new physiology is in one sense not new, but very old. It is only new in the sense of consciously pursuing an aim which has nearly always been instinctively pursued by physiologists."

"The normals of a living organism are no mere accidents of physical structure. They persist and endure, and they are just the expression of what the organism is. By investigation we find out what they are, and how they are related to one another; and the ground axiom of biology is that they hang

together and actively persist as a whole, whether they are normals of structure, activity, environment or life history. In other words organisms are just organisms and life is just life, as it has always seemed to the ordinary man to be. Life as such is a reality. Physiology is therefore a biological science, and the only possible physiology is a biological physiology. The new physiology is a biological physiology—not bio-physics or bio-chemistry. The attempt to analyze living organisms into physical and chemical mechanism is probably the most colossal failure in the whole of modern science."

In this brief review of Professor Haldane's address it is not possible to do exact and full justice to his expressions. The address must be read to be appreciated and understood. It would be a sad mistake to imagine that Haldane sees no value in chemistry and physics as applied to the investigation of living phenomena. This would indeed be strange in a man whose life's work has been just such an application with preeminent success. It is the point of view adopted in such investigations which is the essence of his criticism. In conclusion Dr. Haldane calls attention to this new point of view in medicine. "But medicine, as we have seen, is supremely interested in the physiological normal. What a man sees at the bedside is a perversion of the normal, and nature's attempts to restore it, with what assistance medicine can give. For medicine it is necessary to know the normal in its elastic and active organization. He who knows how the body regulates its normal temperature will not confuse heat-stroke with fever, or make the mistake of attributing fever to a mere increased heat-production in the body. He who knows how the breathing is normally regulated will be in a position to distinguish at once between various causes of abnormal breathing; and similarly for every abnormal symptom met with in disease."

Therapeutic Artificial Pneumothorax in the Treatment of Tuberculosis.*

Frank M. Conlin, M. D., Omaha.

One of the best arguments to be brought forward in favor of the curability of tuberculosis is found in the post mortem records. Bouchard in his report of post mortems found that in over seventy-five per cent of persons dying suddenly there was some evidence of tuberculous lesions active or healed. Statistics, however, vary and this figure might be considered high by some and low by others. So common, however, are the evidences of repaired or cured tuberculosis of the lung, that the Germans have an axiom "Jederman hat am ende ein bischen Tuberculose." A point of special significance in the consideration of the post mortem evidences of tuberculosis is that the lung far exceeds any other tissue in the body in its ability to overcome tuberculous infection.

In cases of pleurisy with effusion the question has probably arisen with many of you, as it has with me, as to the advisability of removing the fluid from the pleural cavity. I have often asked myself the question, is not nature helping this patient more by throwing out this fluid, separating these inflamed surfaces and putting them at rest than could I by tapping the chest, removing the fluid, expanding the lung again, and bringing the inflamed surfaces together. Is not nature following what we know to be one of the cardinal principals of treatment; namely, rest? We all know that in treating infection in any part of the body we put that part at rest, for example, the immobilization of an inflamed joint. It is not only true of inflammations, but other conditions as well, a diseased heart, a diseased stomach or intestine does much better with rest. Quoting James A Lyon, Boston Medical & Surgical Journal, August, 1914: "The principle results following the immobilization of a tuberculosis joint and the change in prognosis in the advanced case of pulmonary tuberculosis following the onset of a pleural effusion are well known, and many authorities quote many instances where complete recovery has occurred following effusion in their

cases. With the accumulation of fluid in the chest cavity it is shown by many observers that the cough, and expectoration decreases, that the temperature slowly returns to normal and that the toxic symptoms are less. It has been observed so frequently that many sanitoriums (Rutland State Sanitorium, Rutland, Mass.), have made it the practice to refrain from removing the fluid unless there were some well grounded reasons for doing so." They followed this practice up to recently, and now are replacing the fluid with sterile nitrogen gas.

HISTORY.

Carson of Liverpool in 1821 first advanced the idea that a diseased lung would heal more quickly if that lung were put at rest, and in 1822 he published a paper dealing with his first experiments on animals with the production of a surgical pneumothorax. To Forlanini, however, belongs the credit of first actually carrying out these experiments on human beings and between 1882 and 1894 he did considerable work both on human beings and on animals using first, various liquids, then gases; oxygen first, air next and lastly nitrogen. He first published his results in 1894 in the Munch Med. Woch. In 1898 at the Denver meeting of the American Medical Association, Murphy of Chicago reported five cases treated by this means, and at that time stated that to his mind the keynote of the treatment was the enforcing of the physiological rest, or in other words; "tuberculosis of the lung might be treated as tuberculosis of the joints is treated, by immobilizing and enforcing rest, by causing drainage of the secondary products and allowing the ulcer or cavity to heal." Murphy himself did not carry this work on at the time, but the work was taken up by Lemke, who was associated with him but who died shortly afterwards. The work of Murphy and Lemke influenced Brauer of Breslau to take up actively this treatment of pulmonary tuberculosis and from that time on great interest was shown. At the present time the work is being done all over Europe and in America in practically all the large sanitariums treating tuberculosis.

*Read before The Nebraska State Medical Association, Omaha, May, 1916.

INDICATIONS AND CONTRAINDICATIONS.

Authorities vary as to the character of the cases in which artificial pneumothorax is especially indicated. Most agree that the injection of nitrogen gas is indicated particularly in apical or mono-lobar tuberculosis in the early stages, for in these conditions, pleuritic adhesions are not present, therefore a complete collapse of the lung is possible. In advanced tuberculosis it does not offer so much help, for the reason that the pleuritic adhesions and large amount of fibrous tissue deposited in the lung, will not permit complete collapse. Sternberg considers advanced bilateral tuberculosis and incipient cases not suitable; on the other hand Kind and Mills in the American Journal Medical Sciences, 1913, show a permanent relief in a small percentage and improvement in one-fourth of the cases they reported. Their work was done upon advanced cases that had failed to improve under more conservative lines of treatment, and Lemke citing one hundred cases in Murphy's service reports good results in just this type of case.

Billion (Hospitastid, Sept. 6, 1912) considers age an important factor and has found in his experiments that in cases from 35 to 40, pneumothorax is not well born. Bonon says that it is even indicated in acute cases, and Fishberg confirms his contention. Apart from tuberculosis good results in pneumothorax have been reported in

1. Abscess of the Lung
2. Bronchiectasis
3. Purulent Bronchitis
4. Hemoptysis.

Laryngeal tuberculosis has been shown by Da Gradi, an assistant to Forlanini, to be favorably influenced by pneumothorax, due, in all probability, to the fact that reinfection by the sputum has been stopped and to the limitation of the toxemia from which the patient was suffering.

Dangers are given by Murphy as follows:

- a. Hemorrhage from wounding the intercostal vessels.
- b. Injection of gas into the intercostal vein.
- c. Infection by the use of impure gas, in-

fecting trocar or improper antiseptic preparation of the chest wall.

d. Rupture of infected foci into the pleural cavity through compression of the lung and separation of pleuritic adhesions.

e. Dyspnoea from the use of too large a quantity of gas; this can be readily relieved by changing the direction of the current and permitting some of the gas to escape from the pleura.

f. Puncture of the lung with the needle.

g. Pleural reflexes resulting in collapse, spasm of the larynx, etc.

h. Spontaneous pneumothorax and emphysema may also occur.

Sundberg reports three deaths, first occurring 36 hours afterward; post mortem showed numerous foci of softening of the cerebral cortex and thrombosis of the smaller vessels, which he believes were due to vascular crises in the cerebrum originating from the pleural reflex; the second case, a man of 49 after receiving 300 C.C's. of gas died with a progressive dyspnoea. Post mortem showed the vocal cords tightly opposed along the inner margin and Sundberg thinks that death in this case was due to spasm of the glottis. In the third case post mortem showed no cause for sudden death, and Sundberg believes the pleural reflex may possibly have been the cause. Forlanini reports that during 1907 and 1908 he made 1,454 injections of nitrogen into the pleura with four accidents and but two deaths, one of them being a case of miliary tuberculosis with a pericardial effusion of about 200 CCs. Murphy in his experiments believes that fatal results are due to failure in the technique, and to absence of the knowledge of the accidents that can occur in surgery of the lungs, independently of the pneumothorax treatment. Balboni in the Boston Medical and Surgical Journal, 1913, gives the following contra-indications:

1. Alcoholism.
2. Cardio-Renal disease.
3. Acute or Chronic advanced bilateral cases with destruction of both lungs.
4. Very extensive pleural adhesion.
5. Emphysema.
6. Splanchnoptosis.
7. Intestinal tuberculosis.
8. Diabetes.

TECHNIQUE OF PUNCTURE.

"The chosen site is sterilized by painting with tincture of iodine. After this has dried, it is washed off with alcohol. A sterile hypodermic syringe containing a sterile 2 per cent solution of novocaine with adrenalin is injected intradermically and subcutaneously, and then into the successive layers of tissue until the pleura is reached. The skin and the pleura, being the most sensitive tissues, call for the most careful anesthetization. Five to ten drops suffice. In a few moments the sterilized gas-needle may be introduced without pain. In introducing the gas-needle, care should be taken to avoid the edges of the ribs. After passing the point through the skin, which is easily accomplished with a sharp needle, without previous cutting, and before the whole thickness of the thoracic wall has been penetrated, the three-way stopcock is opened to the manometer. The apparatus thus being ready to record any pressure change, the needle is pushed slowly onward until it reaches the pleura. If the pleura is not adherent, the manometer will immediately record the arrival of the needle in the pleural space. The distance at which this will occur should be judged by computing the thickness of the chest wall. Most writers agree that when the needle arrives in the pleural space the manometer indicates the fact by regular oscillations, varying in length from 1 to 4 cm. of water. And indeed this is the only trustworthy indication of safety, and gas should not be introduced until this indication has been obtained. However, it must be stated here that the viscosity of the contiguous pleural layers frequently holds them together even after the needle-eye is between them. But the manometer will then give a sudden jerk to 1 or 2 cm. negative pressure, though free oscillations will not occur. By allowing a very little gas, 2 or 3 c.cm. to flow through the needle, the pleurae are separated, and satisfactory oscillations will be obtained, indicating safety. The oscillations should be free, and synchronous with the respiratory movements. Unless one is aware that the viscosity of the pleurae may prevent free oscillations until some gas has been introduced, one may easily be deceived and abandon a good puncture for lack of ability to recognize this earliest signal of the manometer—namely, a sudden jerk to negative pressure."—(Von Adelung).

The chest is punctured as far away as possible from the main pulmonary lesion for in this way pleural adhesions may be avoided. Physical diagnosis as well as fluoroscopic examination often fails to reveal the pleural adhesions or show all the signs of adhesions, and on puncturing one finds a free pleura. Forlanini is guided by tidal percussion on the margin of the lung, especially at the base. When he finds the base line in the axilla shifting between ten and twelve cm., during each inspiration as compared with ex-

piration, he is convinced the pleura is free. Nitrogen is used almost entirely at the present time for these injections, Unyrich having shown by experiments on absorbability of different gases, that oxygen is absorbed first, carbon dioxide second and nitrogen last. It seems to be the opinion of most authorities that at the end of three weeks, absorption has progressed to the stage in most cases where breath sounds are audible and another injection is indicated. X-ray examination, however, will clear up this question better than physical examination.

Authorities vary as to the amount of gas to be injected. Murphy says 3,000 c.c., while Forlanini now advises only 200 to 300 c.c. The majority of observers seem to favor smaller quantities as safer. The second injection may be made in the neighborhood of the first puncture very easily. Quoting the experiences of Saugman and Fishberg: "During the first few fillings the final manometric pressure should not exceed 4 cm." Saugman and Forlanini have not hesitated to increase the pressure in some cases of pleural adhesions to even 30 and 40 cm. Frequency of the refillings will vary with the individual patient—those up and about absorb more rapidly than those who remain in bed. The general condition of the patient and findings by physical examination are the best guides.

SYMPTOMS.

The pain, shortness of breath, collapse that often occurs in spontaneous pneumothorax are not found in artificial pneumothorax, and, if they do occur, may easily be treated by reversing the gas current. The fever, following an injection of the gas, disappears, the appetite improves, the coughing spells that have been keeping the patients awake at night are markedly relieved, pulmonary hemorrhage is stopped and the number of tubercle bacilli in the sputum markedly lessened. Except for the fact that patients do not rapidly gain weight there is a general improvement. An interesting point, quoting from Fishberg: "Is the absence of dyspnoea, although the breathing area has been cut down one-half. Experience has shown, however, that reduction of 66% of the respiratory area does not materially alter the

pulmonary ventilation, or the chemistry of respiration, providing the patient is at rest."

RESULTS.

Murphy and his associates after an experience with 500 cases, conclude that the treatment should always be tried where there are no contraindications. Brauer and Splengler report 98 advanced cases with 57 improved.

Saugman 69 cases with 38 improved and 17 cured; Sachs 1145, immediate improvement 29.2%, durable results in 31.7%.

Hamman reports 26% improved and 14% cured.

Chadwick 34 cases—22 showed improvement; all of his cases were in the last stages of the disease.

The hopelessness of the case should not deter one from giving the treatment if indicated. Quoting Fishberg: "An artificial pneumothorax often saves life, gives comfort and in some cases results that cannot be obtained with any other method of treatment." Surgeons point with pride to the operation of gastrostomy for cancer of the oesophagus or stomach and to the palliative enterostomies and tracheotomies done for incurable conditions, although these operations do not give results comparable with artificial pneumothorax in hopeless cases of phthisis.

EFFECT ON NEIGHBORING ORGANS.

Lungs. According to Balboni the non-compressed lung may be perfectly able to carry on the necessary respiration—provided the pneumothorax is gradually produced. Riva-Rocci has shown the amount of air inspired in a given time remains unaltered, and Carpenter and Benedict have shown by metabolism experiments that the reduction of tissue for oxygen absorption and carbonic acid elimination in the lungs, by about one-half does not materially alter the total metabolism.

Heart. The healthy heart seems to readily adopt itself to changes in position that occur, and the patients bear marked cardiac displacement with no ill effects when the pneumothorax is produced gradually. Weis has noticed a marked improvement of the heart condition after the establishment of

pneumothorax in cases where the heart was weakened by the absorption of toxins.

Pleura. As time goes on the absorbing power of the pleura diminishes, the nitrogen, acting as a foreign body interferes with its nutrition and has an irritating action upon the delicate endothelial cells. If the pneumothorax is allowed to absorb, before the case is cured, the pleural surfaces coming into contact may adhere.

EFFECTS ON EXTRA THORACIC TUBERCULOSIS.

Da Gradi and Courmont each report on the favorable influence of artificial pneumothorax in laryngeal cases. Carpi, Pisani, Weis and Kalink have each reported a case in which there was systematic recovery in renal tuberculosis following the establishment of a pneumothorax for pulmonary involvement—the improvement being due, in all probability, to the lessening of the toxemia.

CONCLUSIONS.

My idea of writing a paper on artificial pneumothorax in the treatment of tuberculosis was not to advocate it as a "cure-all." I believe in selected cases that this method of therapy is capable of helping the patient greatly—I also believe these cases should be followed only under the best of conditions, and that the hygienic and dietetic treatment should be carefully carried out as well. Artificial pneumothorax is a harmless procedure in most cases and if performed carefully it causes surprisingly little inconvenience to the patient. It has a marked influence on the cough, expectoration, fever, the number of tubercle bacilli in the sputum, and the general condition of the patient. It is of value in controlling the hemorrhage, of obliterating abscesses, bronchiectatic cavities, etc. I believe that artificial pneumothorax has now passed the experimental stage, and is gradually finding a definite place in the treatment of cases of pulmonary tuberculosis, which do not yield to other methods.

NOTES.

Dr. L. E. Dickinson has removed from Rockville to Ravenna.

Work has begun on a new hospital at Wilbur, Nebraska.

Dr. C. P. Fordyce recently of Grand Island is now located at Fairfield.

The Broken Bow Hospital has just been renovated and newly furnished.

Through the efforts of Dr. G. H. Morris a hospital is in progress of construction at Oshkosh.

Dr. Lillian Coates of York has recently left for Chicago where she will do post graduate work.

Dr. H. C. Smith of Franklin has just returned from a post graduate course in New York City.

Dr. J. M. Welch has removed from Stockham to Sutton where he will operate the Sutton Hospital.

Dr. D. D. King has removed from Waco to York where he will be associated with Drs. Moore & Shidler.

Dr. Crook of Winnetoon has removed to Plainview. Dr. Crook is succeeded at Winnetoon by Dr. W. S. Yates.

Dr. C. A. Allenburger of Columbus has just returned from the Clinical Congress of Surgeons at Philadelphia.

Dr. J. K. Muldoon has been appointed Burlington surgeon with special charge of railroad work at Arapahoe and vicinity.

Dr. G. A. Clark of Central City has removed to Edison, Nebraska, where he will be associated with his brother Dr. Guy Clark.

According to the report of the State Board of Nurse's Examiners, the hospital at Spencer has been placed on the accredited list.

Louis R. Curtis, formerly superintendent of St. Luke's Hospital, Chicago, has become president of the Frank S. Betz Company.

Dr. Ella P. Sumner of Bloomington has been appointed to the staff of house physicians of the Nebraska Methodist Hospital, Omaha.

The central part of the new hospital at Alliance is rapidly nearing completion. A wing has been erected at the cost of about \$42,000.

At a recent meeting of the Custer County Medical Society held at Callaway, Dr. F. A. Burnham was elected president for the ensuing year.

Trustees of the Hartington Hospital have elected the following officers: Anton Walz, Pres.; Wilbur F. Bryant, Secy., and Willard H. Burney, Treasurer.

Dr. S. A. Campbell of Tilden was made a Fellow of the American College of Surgeons at the Convocation of the College in Philadelphia, October 27, 1916.

Dr. F. B. Young has removed from Little Rock, Arkansas, to Gering, Nebraska. Dr. Young was a member of the staff of the State Hospital at Little Rock.

Dr. F. C. Cyphers of Duncan presented a paper at the recent meeting of the Platte County Medical Society. The meeting was held at the Evans Hotel, Columbus.

Drs. H. Winett Orr, K. S. J. Hohlen, W. O. Colburn and Edmund G. Zimmer have announced their association and the opening of their new offices in the Terminal Building at Lincoln.

A chapter of the national medical fraternity Phi Chi has been installed in the University of Nebraska

College of Medicine, Omaha. There are twenty charter members on the active list with five honorary members from the faculty.

Plans for the erection of a \$70,000 hospital were discussed at a recent meeting of the stock holders held in Beatrice. The new hospital is to be modern and the plans contemplate construction early in 1917. The German Lutheran denomination have inaugurated the plan.

The new Ford Hospital at Omaha is now open for patients. The hospital cost approximately \$150,000 and is remarkably well equipped. The hydrotherapeutic department is said to be one of the best in the west. Miss Bertha H. Friedman of the Illinois Training School is superintendent.

The Central States Orthopedic Club will meet in Cleveland and Cincinnati December 27th and 28th. This Club was organized in Chicago in 1912, and is doing much to advance the cause of orthopedics. Dr. H. W. Orr of Lincoln is secretary of the Club. The days of the session will be spent in clinics and demonstrations by the specialists of the two cities visited.

One hundred physicians attended the annual alumni week of the University of Nebraska College of Medicine which was held in Omaha the week of October 30th to November 3d. The week was devoted to hospital clinics in the forenoons, demonstrations of cases and conferences in the afternoons. Thursday evening was given over to the annual banquet at which Dr. Arthur Dean Bevan of Chicago was the guest of honor. Dr. Bevan's address dealt with the reorganization which has come about in clinical teaching. A business session closed the activities of the week at which time the following officers were elected: President, Dr. W. N. Anderson, Omaha; First Vice President, Dr. W. J. Douglas, Atkinson; Second Vice President, Dr. James C. Agee, Fremont; Secretary-Treasurer, Dr. Roy A. Dodge, Omaha.

Gov. Dunne of Illinois paid tribute to the memory of Dr. Christian Fenger at the recent unveiling of the Dr. Christian Fenger Memorial tablet in the lobby of the Cook county hospital. Over 300 Danish-Americans and a score of Chicago physicians were present. Other addresses were delivered by Dr. A. Augustus O'Neill, president of the Chicago Medical society, and Dr. Joseph L. Miller, chief of the attending staff of the hospital.

The bronze likeness of Dr. Fenger was fashioned by Carl Holm and Ludvig Dorge, two of his own countrymen. It bore the inscription: "Dr. Christian Fenger, born in Denmark, 1840; died in Chicago, 1902, whose pioneer work in modern surgery and pathological anatomy is a part of the history of the Cook county hospital. Erected by his countrymen."

The committee in charge of the Fenger Memorial fund has been at work on the memorial plan for several years. The plan which materialized yester-

day is the result of voluntary contributions by Danish-Americans.

"Dr. Fenger was the father of modern surgery," said Gov. Dunne. "He devoted his life to suffering humanity. It is the duty of the state of Illinois to join in honoring the men who do well."

Waldemar Bauer, a personal friend of Dr. Fenger for forty years presented the tablet to the president of the county board in the name of the American citizens of Danish birth in this country.

"Although fourteen years have passed since his death," said Mr. Bauer, "the fame of Dr. Fenger remains undiminished. He helped make the Cook county hospital one of the greatest institutions of its kind in the world."

The mortality census of the United States for the year 1915, issued recently, shows a decline in the death rate for the whole country from tuberculosis from 200.7 per 100,000, to 145.8 in the last ten-year period. Another discovery by the census is that the "safety first" campaign conducted generally throughout the country has produced decided results.

In 1913, 54,011 deaths were due to accidents; in 1914 the number was reduced to 51,770, and in 1915 to 51,406; and in this period there was an increase in the population of the registration area as it existed in 1913, and an increase of the area. The rate per 100,000 population for accidental deaths fell from 85.3 in 1913 to 78.5 in 1915, and to 76.3 in 1915.

Deaths by railway accidents and injuries totalled 6,652 in the registration area in 1915, or 9.9 per 100,000. Deaths from street car accidents and injuries numbered 1,555 (or 2.3 per 100,000. This rate is the lowest on record.

Automobile accidents and injuries caused 3,978 deaths in 1915, or 5.9 per 100,000.

COUNTY SOCIETY NOTES.

Fillmore County Society Officers.

The Fillmore county officers for the year 1917 are as follows:

J. Bixby, Geneva.....	President
V. V. Smrha, Milligan.....	Secretary and Treasurer
F. L. Beck, Geneva.....	Delegate
N. H. Blakely, Geneva.....	Alternate

Republican Valley Medical Association.

At the regular meeting of the Republican Valley Association held at McCook, Nebraska, October 26, 1916, the Nebraska State Medical Journal was chosen as the official organ of the association. The following officers were elected for the ensuing year:

Dr. C. L. Fahnstock, McCook.....	President
Dr. J. K. Muldoon, Arapahoe.....	Vice President
Dr. L. W. Rork, Oxford.....	Secretary
Dr. W. D. Shields, Holdrege.....	Treasurer

Following the business meeting the ladies of the Eastern Star served luncheon. Dr. J. M. Banister of Omaha addressed the association.

PROGRAM.

- Mucous Colitis, Dr. P. A. Sundbury, Holdrege.
- Influence of the Internal Secretions on Metabolism, Dr. S. J. Jones, Hastings.
- Hypothyroidism, Dr. Lee W. Rork, Oxford.
- Discussion of two papers above by G. A. Young, Omaha.
- Sudden Death of the Newborn, Dr. C. L. Fahnstock, McCook.
- Common Sense Obstetrical Technique, Dr. J. K. Muldoon, Arapahoe.
- Progressive Muscular Atrophy, Dr. Ella P. Sumner, Bloomington.
- The next meeting of the Association will be held at Holdrege, the first Thursday in May.

Lee W. Rork, Secretary.

Buffalo County Society.

October 29th, the last day of the Rural Life Conference held at the Kearney State Normal, was "Better Baby Day." Approximately one hundred babies were entered and the examinations were conducted under the auspices of the Buffalo County Medical Society. The babies were scored according to the Standard Score Card issued by the American Medical Association. Eight doctors and five dentists were on duty from 9 a. m. until 5 p. m.

Dr. J. A. Strong of Kearney recently underwent an operation for gall bladder trouble in a Denver hospital.

L. M. Stearns, Secretary.

Northeast Nebraska Medical Society.

The Northwest Nebraska Medical Society recently closed a most successful meeting at Ainsworth. Papers were read by Dr. Robert H. Foster of Norfolk, Dr. C. W. Hargens of Hot Springs, South Dakota, Dr. Harold Gifford of Omaha, Dr. Blaine Young, Marriman and Dr. E. T. Wilson of O'Neill. A banquet at the Osborn House was held in the evening which was largely attended. Speakers at the banquet were Drs. Richards of Crawford, Hargens of Hot Springs, Tische of Wood Lake, Salter, Foster and Charlton of Norfolk, Foot of Bassett, Lynch of Valentine, Remy, Ely and Jones of Ainsworth and Wilson of O'Neill. The presence of the wives of visiting physicians added greatly to the social features of the meeting.

A resolution was adopted setting forth the needs of the small towns of the state for modern up-to-date hospitals. The resolution called for the enactment of a law which would permit towns and villages of the state to vote bonds for the erection of city hospitals and an annual tax for the maintenance of the same.

Officers for the Madison County Medical Society for the year 1917 are as follows: A. E. Gadbois, M. D., President; F. L. Frink, M. D., Vice President; E. L. Brush, M. D., Secretary-Treasurer; W. R. Peters, M. D., Delegate.

Army Medical Corps Examination.

The Surgeon General of the Army announced that a preliminary examination for appointment of first lieutenants in the Army Medical Corps will be held early in January, 1917, at points to be hereafter designated. Full information concerning the examination can be procured upon application to the "Surgeon General, U. S. Army, Washington, D. C." The essential requirements are that the applicant be a citizen of the United States, between 22 and 32 years of age, graduate of a recognized medical school, and of good moral character and habits, and have had at least one year's hospital training, as an interne, after graduation. In order that all arrangements for the examination may be perfected, applications should be forwarded without delay to the Surgeon General of the Army. There are at present 228 vacancies in the medical corps.

Pediatric Society.

On Nov. 23rd, the doctors of Omaha and Council Bluffs interested in Pediatrics organized the Nebraska-Iowa Pediatric Society.

Dr. H. M. McClanahan.....President

Dr. Clyde Moore.....Vice President
(Chairman of Program Committee)

Dr. Newell Jones.....Sec.-Treas.

Meetings will be held the third Tuesday of each month from October to May inclusive. The following symposium for the coming year has been given out by the program committee:

Tuesday, Dec. 26th, Infantile Congenital Syphilis, Newell Jones. Discussion opened by A. B. Adams.

Tuesday, Jan. 16th, Late Congenital Syphilis, H. B. Hamilton. Discussion opened by Wm. Berry.

Tuesday, Febr. 20th., Acquired Syphilis As Related to Children, J. W. Hellwig. Discussion opened by B. W. Christie.

Tuesday, March 20th, X-ray Manifestations of Syphilis Particularly of Bones, A. F. Tyler. Discussion opened by A. P. Overgaard. Clinical cases showing different manifestations of syphilis.

Tuesday, April 17th, Review of Late Literature on Syphilis, J. C. Iwerson. Discussion opened by F. S. Clarke.

Tuesday, May 15th, General Review, H. M. McClanahan. Discussion opened by Mary Tinley.

STATE SECRETARY'S COLUMN.

Saunders and Merrick counties have paid their 1917 dues.

The business side of our official Journal is a most vital part of it's affairs. Our \$1.25 annual payment per member for its monthly publication does not pay for its maintenance. We need more pages for reading matter now awaiting publication. Before we enlarge our Journal the money to pay the added cost must be assured. Our advertising columns carry the names of business firms (see list below) who have confidence in our ability to initiate and maintain a first class medical Journal. They evidence their faith by remitting a check each month. Reciprocity on our part will retain their ads, and secure new business for us. We should get acquainted with our advertising patrons, write for their catalogues, buy of them, and request the patronage of our friends for them.

County Secretaries and Members.

We close the calendar and fiscal year of our State Medical Association with more than a thousand members. Our county societies are well organized and doing good work; our councillors are taking an active interest in their respective districts; our standing and special committees are at work. Reports from standing committees, Secretary, Treasurer, Librarian and Secretary of the Council cover (by Constitutional and By-Law provision) the year ending Dec. 31, 1916. Your state secretary's report of membership to our National Secretary will include only the names of those who paid 1916 dues. Our 1917 dues should be paid promptly in January.

Joseph M. Aikin,
Secretary.

Ira H. Dillon,
Auburn, Neb.,
Secretary of the Council.

List of Advertisers, Nebraska State Medical Journal.

Birch Knoll Sanitarium, 2211 St. Mary's Ave., Omaha, Neb.

E. E. Bruce & Co., 401 So. 10th., Omaha, Neb.
Central Typewriter Exchange, Inc., 1905 Farnam St., Omaha, Neb.

The W. G. Cleveland Co., 1410 Harney St., Omaha, Neb.

Clarkson Memorial Hospital, Dewey Ave. & 21st St., Omaha, Neb.

Conservative Saving & Loan Association,
1614 Harney St., Omaha, Neb.
Frank S. Betz Co., Hammond, Ind.
Borden's Condensed Milk Co., 108 Hudson St.,
New York City.
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St., Chicago, Ill.
Gradwohl Biological Laboratories, 928 N.
Grand Ave., St. Louis, Mo.
The Hygeia Hospital, 2715 Michigan Blvd.,
Chicago, Ill.
Horlick's Malted Milk Co., Racine, Wis.
Indiana Springs Co., Kramer, Ind.
The Medical Protective Co., Fort Wayne, Ind.
Mead Johnson & Co., Evansville, Ind.
Physicians Casualty Assn., 304 City Natl.
Bk. Bldg., Omaha, Neb.
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Philadelphia, Pa.
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York City.
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Omaha, Neb.
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42nd & Dewey Ave., Omaha, Neb.
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aha, Neb.
Norfolk General Hospital, Norfolk, Neb.
Omaha Printing Co., 13th & Farnam Sts.,
Omaha, Neb.
Peters Trust Co., 1622 Farnam St., Omaha,
Neb.
Presbyterian Surgical and Medical Hospitals,
Omaha, Neb.
Guy L. Smith Automobile Co., 2561 Farnam
St., Omaha, Neb.
Univ. of Neb., College of Med., 42nd & Dewey
Ave., Omaha, Neb.
E. R. Wilson Auto Co., 2550 Farnam St.,
Omaha, Neb.

Nebraska Physicians by Counties.

The following table of the physicians in the several counties of Nebraska, together with the number who are members of the county societies is worthy of perusal.

The figure above the name of the county indicates the number of physicians who are members of the County Medical Society and the State Medical Association. The figure below the county name indicates the number of physicians in the county. The counties showing a high percentage of County Society members are as follows: Box Butte, Buffalo, Burt, Cuming, Dodge, Gage, Howard, Nance and Pierce. Of these Howard and Cuming show every physician in the county to be a member of the County and State Societies.

31	6	13
Adams	Cheyenne	Fillmore
46	10	21
0	5	11
Antelope	Cherry	Franklin
0	8	15
14	15	0
Banner	Clay	Frontier
2	19	3
0	7	9
Blaine	Colfax	Furnas
1	11	12
8	9	32
Boone	Cuming	Gage
12	9	40
8	20	0
Box Butte	Custer	Garden
10	27	4
8	1	0
Boyd	Dakota	Garfield
11	6	3
2	9	0
Brown	Dawes	Gosper
10	15	2
20	14	0
Buffalo	Dawson	Grant
24	18	4
12	0	0
Burt	Duel	Greeley
14	2	3

Dr. C. B. Calbreath, Councilor of the 10th District has resigned and Dr. S. R. Hopkins has been appointed to fill the unexpired term.

President Milroy has appointed the following as the special committee on Social Insurance for the Nebraska State Medical Association:

J. Lue Sutherland, Grand Island, Chairman.
R. D. McGrath, Grand Island.
A. T. Hubbell, Wood River.

14 Butler 19	9 Dixon 13	20 Hall 30	84 Lancaster 195	14 Platte 20	4 Thurston 8
11 Cass 27	35 Dodge 37	14 Hamilton 19	12 Lincoln 19	9 Polk 15	6 Valley 11
11 Cedar 14	220 Douglas 309	8 Harlan 11	0 Logan 2	11 Red Willow 16	9 Washington 12
2 Chase 4	4 Dundy 6	1 Hayes 1	0 Loup 1	13 Richardson 31	7 Wayne 11
3 Hitchcock 6	11 Madison 26	16 Saline 28	0 McPherson 1	0 Rock 4	8 Webster 17
13 Holt 17	13 Merrick 17	3 Sarpy 7	0 Wheeler 1	22 York 32	
0 Hooker 2	0 Morrill 3	15 Saunders 23			
9 Howard 9	9 Nance 9	11 Scotts Bluff 23			
11 Jefferson 35	13 Nemaha 25	12 Seward 16			
15 Johnson 19	14 Nuckolls 15	0 Sheridan 8			
6 Kearney 9	14 Otoe 24	6 Sherman 10			
0 Keith 1	8 Pawnee 12	0 Sioux 0			
0 Keyapaha 4	0 Perkins 1	0 Stanton 6			
0 Kimball 3	6 Phelps 12	15 Thayer 22			
15 Knox 23	8 Pierce 9	0 Thomas 2			

Physician's Defense and the Defensible Physician.

This is the suitable and cogent slogan coined by W. Kuykendall, M. D., as the theme of his address before the Oregon State Medical Association and printed in the October issue of Northwest Medicine. He concisely and tersely stated the duty of our Medico-Legal Defense Committee, when a member of our State Medical Association is sued for alleged malpractice. He calls attention to the fact that membership and payment of dues is not a guarantee that the physician's service to his patient is always of the highest order of intelligence and good judgment. The moral uplift of knowing we have all the best physicians in Nebraska commending our fitness for the responsibilities of our profession, should stimulate constant efforts toward more knowledge, and critical analysis of our words and acts relating to our Hypocritical oath.

The Medico-Legal Defense department of The Nebraska State Medical Association gives defense to defensible members, and assists in-defensible members in adjusting their mistakes. The regular annual dues furnishes an attorney for the trial of the case, and pays the fees of expert witnesses.

Any member of the Association who intends asking the assistance of the Medico-Legal Defense Committee in defending his case, should not employ an attorney until he has reported to that committee and received advice on how to proceed. An attorney is regularly employed by the committee to take charge of all of its legal business and his immediate attention will be given to each case reported. Judgment cannot be taken in cases of this kind in less than twenty-one days after filing the suit. This gives ample time for reporting, with a thorough examination and consultation before filing answer to the complaint. In notifying us of your suit, you should proceed as follows: either go or write to the clerk of the District Court in the county where suit is filed and secure a copy of the plaintiff's petition, mail that together with your notification to the Secretary of the Medico-Legal Defense Committee.

A. S. von Mansfelde, Ashland, Chairman.

J. S. Welch, Lincoln.

Joseph M. Aikin, Omaha, Secretary.
Committee.

Book Reviews.

Blood Pressure, from the Clinical Standpoint, by Francis Ashley Faught, M. D. Formerly Director of the Laboratory of Clinical Medicine at the Medico-Chirurgical College, Philadelphia. Second edition, 1916, thoroughly revised. Octavo, 478 pages, illustrated. \$3.00 net. W. B. Saunders Co., Phila.

Those who realize the significant and constantly growing applications of blood pressure determinations to medical practice will be stimulated by the title of the publication under consideration to a lively interest in its contents, which is not at all dampened by a perusal of its pages. Roughly, one-third of the book deals with normal blood pressures and with subjects intimately connected therewith, such as, the physiology of the circulation, the principles of sphygmomanometry, the various methods of determining blood pressures, the normal variations of blood pressure, venous pressures, capillary pressures, pulse pressures, etc. In the opinion of the reviewer, Chap. IV of this portion of the work, might be open to criticism in that the numerous illustrations of the various

kinds of manufactured blood pressure machines include many that are non-essential to the subject and do not illustrate fundamental matters but partake rather of the nature of a catalog. Neither have the publishers added to this portion of the work by inserting a paper of decidedly darker tint than the remainder of the pages. Medical men will not, however, owing to this fault-finding, fail to recognize the commendable labors of the author in bringing within manageable scope, blood pressure data which are scattered through a wide "literature." Occasionally, the original source of the data may seem of slightly questionable value but the reader may feel assured by the author's statement in the preface to the second edition that, "whenever possible * * * the introduction of theoretic and inconclusive data" has been avoided.

The clinical aspects of the book deal with such topics as: The acute and chronic infections, hypotension, hypertension, arteriosclerosis, nephritic hypertension and chronic nephritis, cardiac diseases (myocardial, valvular and functional); the relation of blood pressures to surgery; to obstetrics; in life insurance; the therapeutic value of drugs affecting blood pressures and finally, physical methods, such as hydrotherapy, electrotherapy and venesection used in the management of abnormal blood pressures.

Referring again to the preface we find that it has been the author's "chief effort * * * to reduce a very large and complicated subject to a practical working basis, one which may be applied to everyday conditions, which, after all is the chief concern of the practitioner." Such an effort must certainly appeal to all interested in blood pressures, whether as physicians in daily practice, as hospital internes, as scientific investigators, as health officers, as insurance examiners, or as students.

An attractive feature of the book is to be found in the numerous charts showing almost at a glance the blood pressure changes in selected cases. The legends attached give in condensed form other clinical data necessary for a proper appreciation of the cases.

A. E. G.

Disorders of the Sexual Function in the Male and Female (A Practical Treatise On). By Max Huhner M. D., Chief of Clinic, Genitourinary Department, Mount Sinai Hospital Dispensary, New York City; formerly Attending Genitourinary Surgeon, Bellevue Hospital, Out-Patient Department and Assistant Gynecologist, Mount Sinai Hospital Dispensary, New York City; member American Urological Association. 318 pages, cloth, \$3.00 net. F. A. Davis Company, Philadelphia, 1916.

It has been well said, that most works on sexual physiology are really sexual theology and the discussions of the question tend more toward the ideal than the actual state of affairs.

This small volume by Huhner is different in that it takes facts as they are, explains them on a physiological or pathological basis when possible and gives a line of therapy which is valuable and easily carried out. The author has attempted to create a balance between the genito-urinary specialist who sees a sexual basis in all neuroses and the neurologist and internist who seldom see it.

On the whole it is a volume which may be read with profit by urologist, neurologist and general practitioner, alike.

C. R. K.

The Practitioner's Visiting List for 1917. Four styles: weekly, monthly, perpetual, sixty-patient. Pocket size, substantially bound in leather with flap, pocket, etc.; \$1.25 net. Lea & Febiger, New York.

The Practitioner's Visiting List affords a simple and complete system for keeping the records of daily practice. In addition to the ruled pages for daily calls and their notes, general memoranda, addresses, cash account, etc., it contains specially arranged spaces for data desired for permanent record such as births, deaths, etc. The value of such records is best appreciated by the physician who has been suddenly confronted by the necessity of producing such data after the lapse of years and in the absence of an orderly system for their preservation.

Starvation Treatment of Diabetes. (Continued from page 181)

DISCUSSION.

Dr. M. S. Moore, Gothenburg.—I want to congratulate the doctor on this paper. The subject is of vital importance to the general practitioner. Following the Allen treatment I have had most happy results, but I have followed the practice of placing

the chronic diabetic on starvation once in sixty days, and I believe it helps to prevent a recurrence. The difficulty, of course, we all experience is to get them to hold the diet, and my experience has been that most of the diabetics are very hearty eaters as a rule, and it is a difficult matter to keep them on the diet you prescribe for them. For that reason I have instituted the practice of placing them on starvation at least once in sixty days.

Dr. Olga Stastney, Omaha.—I would like to ask whether the doctor has found that it is the exercise or what it is that causes a recurrence of the sugar?

Dr. W. F. Milroy, Omaha.—I would like to ask the doctor whether Allen or anybody has any knowledge as to ultimate absolute cure of the disease?

Dr. P. H. Ellis, Omaha.—I would like to ask Dr. Bliss, what the results are in younger patients, those in their teens or early twenties? I have seen occasionally such cases, and in my experience these are the most serious types of diabetes. Is the treatment as favorable in these cases?

Dr. Newell Jones, Omaha.—I have, within the last two months, seen two cases of diabetes in children under eleven years of age, one being sugar free for eighteen months and the other for seven months under the Allen treatment.

Dr. Bliss, closing: Answering Dr. Stastney's question. Of course we all realize that the handling of diabetics is a difficult problem, and that one of the difficult features is to make the patients do what we want them to do. It is much easier to obtain results in the hospital than out of it, so I think that as many cases as possible should have a hospital regimen first for ten days or two weeks, after which, like the tuberculous patients, who have had sanatorium treatment, they understand that their own efforts will be necessary to prevent a recurrence. A diabetic should be made to understand that diabetes is a condition which will be fatal unless they make the right effort, and it is the duty of the physician to impress upon the patient that the main object of his life is the control of this disease. Referring to the matter of exercise—it is not believed by Allen and Joslin that exercise does increase the amount of sugar. A moderate degree of exercise is certainly helpful except in the very severe cases.

Let the patient test his own urine, and he can get along pretty well without seeing the doctor.

Dr. Milroy asks about those cured. As I stated in the beginning of the paper this thing is rather new, and has not been tried out long enough. It is only two years since Allen's first treatment, and we really cannot say whether they are cured or not, they are probably not, they are simply controlled.

Dr. Ellis asked about the younger cases. In all medical literature it is found that the young diabetics respond to treatment as well as the old diabetics.

THE NEBRASKA STATE MEDICAL JOURNAL



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Vol. II.

Norfolk, Nebraska, January, 1917.

No. 1

Harvey, Sydenham, Willis—An Appreciation.

LeRoy Crummer, M. D., Omaha.

The middle of the 17th century, which marked the fall of Charles the First, the protectorate of Cromwell, and the restoration was one of the most strenuous periods in

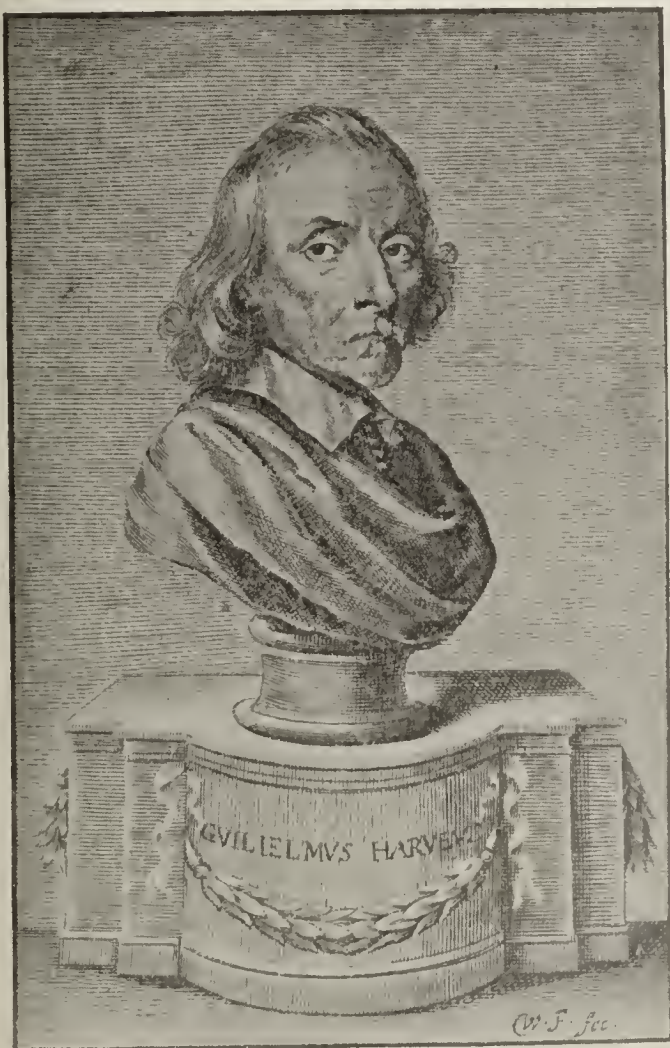
produce deep thinking with freedom from previous restraint. As a result direct progress is made along all lines of intellectual endeavor.

Perhaps to this we can attribute the sudden development of medicine in England at this time, due to the efforts, mainly of Harvey, Sydenham and to a less extent Willis.

Wm. Harvey (1578-1657).

Wm. Harvey entered as Commoner in Caius College, Cambridge, 1593, and graduated in 1597 as A. B. He then traveled through France and Germany and matriculated under Fabricius at Padua, the university town of Venice, probably in 1598, and graduated with honors as Doctor of Physic in 1602. In the same year he received the degree of Doctor of Medicine from Cambridge, given an *ad eundem* degree. In October, 1604, he became a candidate for the College of Physicians. He was married six weeks later. His election as Fellow of the College occurred in January, 1607. He almost immediately became associated with St. Bartholomew's and by 1609 was physician to the hospital. In 1615 he became Lumleian lecturer holding the position till 1656. His first lecture was given just one week before Shakespeare died. In this lecture he demonstrated the circulation but not till 1628 was his work published at Frankfurt-on-the-Maine in "*De Motu Cordis*." In 1618 he was appointed physician-extraordinary to James the First, in 1631 physician-in-ordinary to Charles the First, and in 1639 senior physician-in-ordinary.

Harvey's friends were Fabricius and other members of the University of Padua to which



WILLIAM HARVEY

From frontispiece to English translation "*De Generatione Animalium*" 1653.
Engraver W. Faithorne.

the history of the Anglo Saxons and it is an axiom of history that wars and rebellions

The illustrations in this article are taken from plates in volumes in Dr. Crummer's private library.—Ed.

he seems to have made subsequent visits. He accompanied the Duke of Lennox abroad in 1629. Later in 1636, due to the friendship of Lord Fielding and Lord Arundel, he joined the latter in his embassy. During this trip he met Doctor Ent, ever after a firm friend and designed to play a large part in securing the publication of "de Gen-

He died June 3rd, 1657 of apoplexy and the funeral procession left London for Hemstead in Essex on June 26th, the day Cromwell was for the second time inaugurated Protector.

Harvey's chief claim to fame is the discovery of the circulation, the development of which is of interest. Fabricius, his teacher at Padua, described the valves of the veins so accurately from an anatomical standpoint that it is almost a miracle that he did not see their physiological importance. Harvey worked with him four years beginning when he was twenty years of age. Coming then to London, he must have done a great deal of dissecting though we have but meager information as to the exact details during these years till in 1615 he was appointed Lumleian Lecturer, and in April, 1616, he gave his first course of Anatomical Lectures. During the second lecture he said:

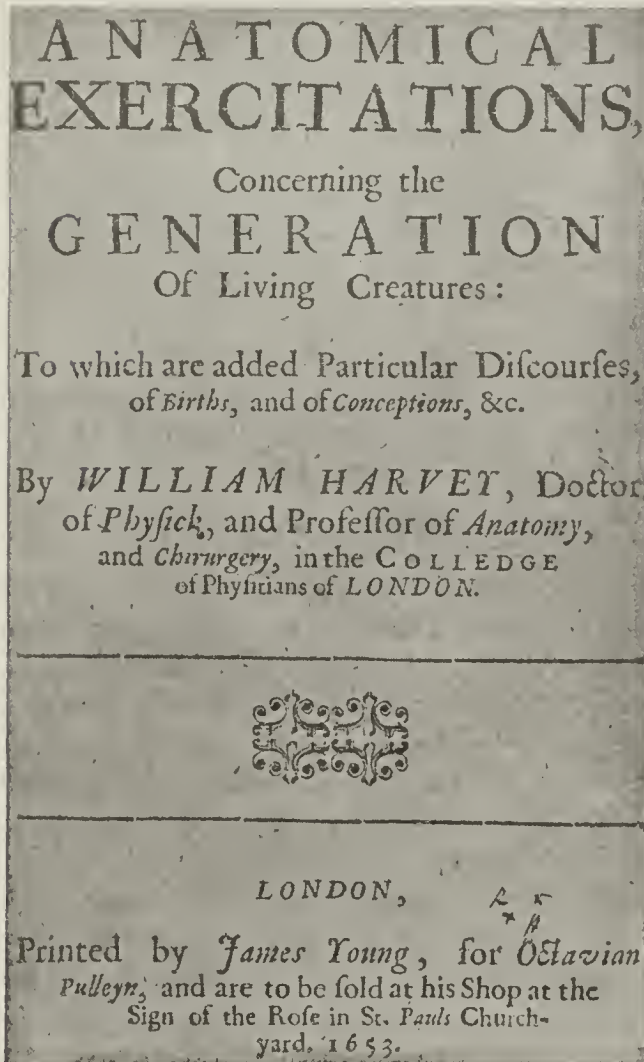
"Whence it follows, that the movement of the blood is constantly in a circle, brought about by the beat of the heart. It is a question, therefore, whether this is for the sake of nourishment, or rather for the preservation of the blood and the limbs by the communication of heat, the blood cooled by warming the limbs being in turn warmed by the heart."

Twelve years elapsed before "De Motu Cordis" was printed, but during this time he continued his lectures and must have frequently demonstrated his discovery for he says in his dedication to Doctor Argent, President of the Royal College of Physicians:

"I have already and repeatedly presented you, my learned friends, with my new views of the movement and function of the heart, in my anatomical lectures; but having now for nine years and more confirmed these views by multiplied demonstrations in your presence, illustrated them by arguments, and freed them from the objections of the most learned and skillful anatomists, I at length yield to the requests, I might say entreaties, of many, and here present them for general consideration in this treatise."

This wonderful discovery is then summarized in Chap. V:

"And now I may be allowed to give in brief my view of the circulation of the blood, and to propose it for general adoption. Since all things, both argument and ocular demonstration, show that the blood passes through the lungs and heart by force of the ventricles, and is sent for distribution to all parts of the body, where it makes its way into the veins and pores of the flesh, and then flows by the veins



Facsimile of the title page of the Fifth Edition (First English) Harvey's "De Generatione." English (44), 566, (2) pp., Port., 12°. London. Young, 1653.

eratione." He was with Charles the First throughout the civil war, most of the time in close personal association. Due to this friendship the Round heads in August, 1642, pillaged Harvey's residence and destroyed most of his papers, a great loss to medicine.

At the battle of Edgehill, October 23rd, 1642, Harvey took care of Charles and James, then boys of twelve and ten. Following this he lived in intimate association with the King at Oxford and was appointed Warden to Merton College in 1645 which he had to give up within the year when the King fled from Oxford.

from the circumference on every side to the center, from the lesser to the greater veins, and is by them finally discharged into the vena cava and right auricle of the heart, and this is such a quantity or in such afflux and reflux thither by the arteries, hither by the veins, as cannot possibly be supplied by the ingesta, and is much greater than can be required for mere purposes of nutrition; it is absolutely necessary to conclude that the blood in the animal body is impelled in a circle, and is in a state of ceaseless movement; that this is the act or function which the heart performs by means of its pulse; and that it is the sole and only end of the movement and contraction of the heart."

The influence of the discovery at the time might be said to be negative. It deprived Harvey of friends and patients. It was not accepted for many years and meanwhile caused many controversies, the most acrimonious of which were with the Riolans', father and son, professors of anatomy at Paris. Within the century it was well accepted and seventeen editions of his book had been called for.



Facsimile of the title page of the Second Edition (Latin) Harvey's "De Generatione." Latin. 568. (6), pp. 24°. Amstelodami. (The famous Elzevir Press). 1651.

Twenty-three years later "de Generatione" was printed. While containing many interesting observations, it of course does not rank with "de Motu Cordis" but as an example of the state of scientific knowledge of this time let me give you one quotation:

"But I cannot but wonder, where the faculty, (when the act of coition is finished, before the production of the Eggs) of Conception doth reside? and to what the active virtue of the Male is imparted? namely, whether to the Uterus alone, or to the whole Female? or rather, primarily to the Uterus, but secondarily to the Female? or lastly, whether, as we see with our eyes, and think with our brains, so a female doth conceive with her Uterus?"



SYDENHAM.

From the picture in the Hall of All Soul's College. Engraved by E. Scriven. Published by Wm. S. Orr & Co., London.

Thomas Sydenham (1624-1689).

Sydenham entered Magdalen Hall, Oxford, as commoner in 1642, but almost at once left to take up arms on the Puritan side. He returned to the same college in 1646. He was created Bachelor of Medicine in 1648 by command of the Earl of Pembroke, but continued in residence at least two years longer and then again joined Cromwell's Army.

Whether he had any further medical training before beginning practice in London in 1656 is not known, but presumptive evidence

points to his being a student under Barbeyrac at Montpellier in 1659.

His observations on fever began in 1661 but he only became a Licentiate of the Royal College of Physicians in 1663 and was never admitted as Fellow. He did not receive his M. D. till 1676. His first book, the work on fevers, appeared in 1666, and he continued to contribute essays at intervals till 1686.

On moving to London, Sydenham lived in Westminster near Whitehall where the Protector had his court. He probably had a two-fold reason for this; first, to aid in acquiring a practice among friends made in the wars, and second, to push forward claims for past military services. Only three years later Sydenham with many other physicians joined in the great flight from London caused by the plague.

The friends of Sydenham were Boyle, to whom he dedicated his first book and John Locke who wrote a preface to the second edition. Malthus, grandfather of the man who three generations later frightened philosophers with the Malthusian doctrine, was his apothecary, intimate friend and ultimately executor. Dover, buccaneer and physician, inventor of Dover's powder was a house pupil.

Truly not a long list of facts, but as Doctor Letsom says:

"Sydenham's biography scarcely enlarges beyond the information that he was a soldier; that he told Sir R. Blackmore, who inquired of him the best books to study in order to acquire medical knowledge, to peruse Don Quixote; that he pursued some short studies and that he died a martyr to the gout."

In fact after years of suffering from gout and stone he died in 1689 and was buried in St. James Church, Westminster.

The lack of knowledge about his life is compensated, however, by the influence of his writings but even here the influence is one of methods not of facts. Without long argument one may say that Sydenham in clinical medicine was the first to try to build theories on observed facts in a world of medicine, which tried to interpret facts to fit preconceived theories. In the light of present day knowledge his observations were not always correct and his theories had to be

biased more or less by antecedent theories no matter how much he tried to avoid them. He had no means of taking temperature and no method of counting pulse, but he did have a belief in seasonal influence. Astrology was still a science and he made his observations thus biased. When we come to conditions which are persistent in type so that we can compare his observations with ours we can add little to his descriptions for instance he says of the gout:

"The victim goes to bed and sleeps in good health. About two o'clock in the morning he is awakened by a severe pain in the great toe; more rarely in the heel, ankle or instep. This pain is like that of a dislocation, and yet the parts feel as if cold water were poured over them. Then follows chills and shivers and a little fever. The pain which was at first moderate, becomes intense. With its intensity the chills and shivers increase. After a time this comes to its height, accommodating itself to the bones and ligaments of the tarsus and metatarsus. Now it is a violent stretching and tearing of the ligaments—now it is a gnawing pain, and now a pressure and tightening. So exquisite and lively meanwhile is the feeling of the part affected, that it cannot bear the weight of the bedclothes nor a jar of a person walking in the room. The night is passed in torture, sleeplessness, turning of the part affected, and perpetual change of posture; the tossing about of the body being as incessant as the pain of the tortured joint, and being worse as the fit comes on. Hence, the vain efforts, by change of posture, both in the body and the limb affected, to obtain an abatement of the pain. This comes only toward the morning of the next day, such time being necessary for the moderate digestion of the peccant matter. The patient has a sudden and slight respite, which he falsely attributes to the last change of position. A gentle perspiration is succeeded by sleep. He wakes freer from pain, and finds the parts recently swollen."

Of Chlorosis he says:

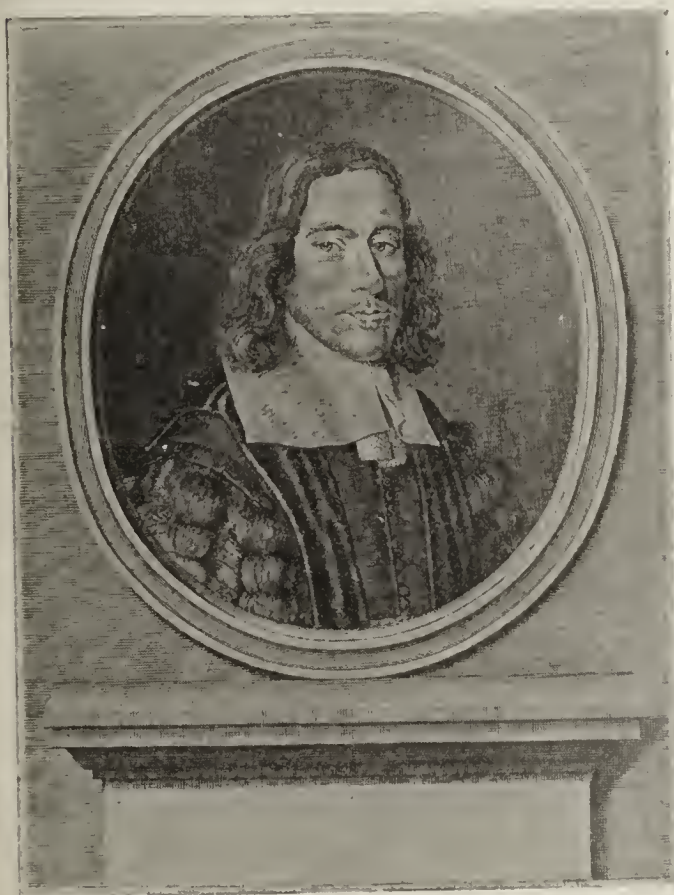
"The face and body lose colour, the face swells, so do the eyelids and ankles. The body feels heavy, there is tension and lassitude in the legs and feet, dyspnoea, palpitation of the heart, headache, febrile pulse, somnolence, pica, and suppression of the menses. The patient must take the Chalybeate pill, or else the Chalybeate powder described in the account of the hysterical affection. The dose must be regulated by her age."

This quotation brings us to his therapeutic triumph, Iron in Anemia. He also introduced Laudanum using it in many conditions and was almost the first of the real physicians to accept and extend the use of Peruvian Bark. Surely a record for one man.

Thomas Willis (1621-1675).

Willis graduated from Christ Church, Oxford, B. A. 1639. M. A. 1642; was in the King's Army at Oxford. Bachelor of Medicine 1646. 1660 Sedleian Professor at Oxford. Doctor of Physic 1660 and in 1666 went to London. One of the first members of the Royal Society. First book on Fermentation, 1659. Other contributions up to 1674, the most important *Cerebri Anatomy* in 1664, all collected and translated by Pordage and printed in London in 1681. Here at Oxford he was more in demand than any other physician in that locality ever had been. He was aided in his dissection by his friend Doctor Lower and Sir Christopher Wren drew his plates. He was an intense believer in the established church and many of his friends were among the prelates of the church. Several of his books are dedicated to Gilbert, Archbishop of

sion of his grandson Browne Willis of Had-don Hall.



WILLIS

From the frontispiece of the Amsterdam Edition
of his "Opera Omnia." 1682.



Facsimile of the title page of Willis' "Opera Omnia." Amsterdam, 1682.

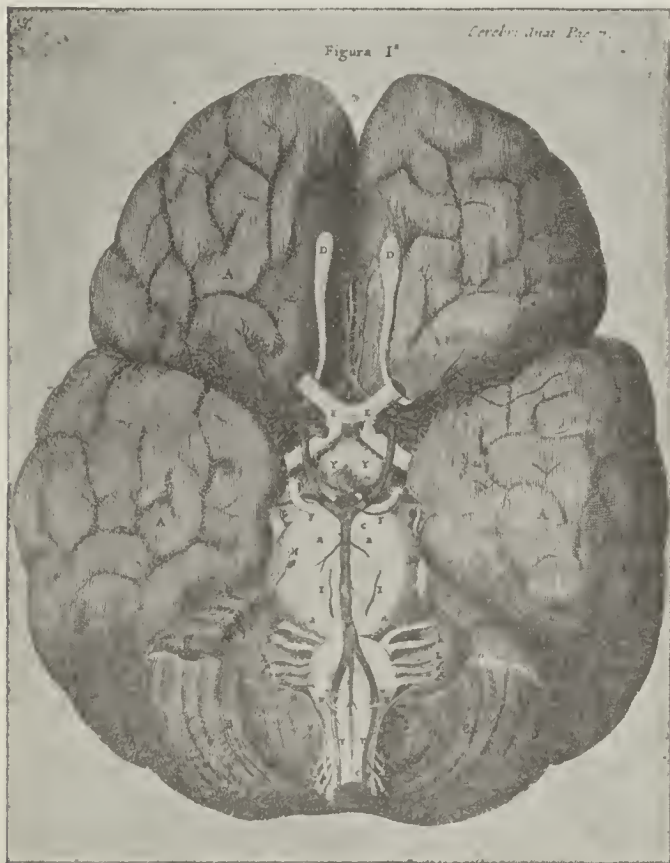
"Waft gentle winds to us a healing breeze,
Let no great Willis' genius ever cease
With him O let not such great balm be lost,
Let not such virtue vanish with his ghost;
Inspire our learned Doctor with his art,
And to our youthful students this impart
The Greatness he in Goodness has acquired,
Whose souls above dead matter still aspired;
His mind's assent so often up to Heaven
Taught him whence all philosophy is given;
Pleased was his God to see his sublime thought
That he above all riches wisdom sought,
And that no secret knowledge reach'd his eye,
But justly he associated to the most High,
And could from thought of Dross his mind refine,
Place them on things Angelic and Devine,
Nature he studied existences of things,
And made distinction of their moving springs,
Confused not nature, nor to beasts debased
His soul, nor Image of his God defaced;
Proud of his Maker's stamp assumed his right,
Out of dead chaos of the Atheist night,
His reason exercised to show that stamp
Had given a more illuminating lamp
To minds of men whose souls it animates
With different things ye brutish natures dictates
He with the body would have cured the soul
Nor could his interests, dues to God control
Who blessed to aid him with riches here
And sat him at his death in nobler sphere."

Canterbury and his well known piety is shown in the following poem, quite typical of the time, which I found written on the fly leaf of my copy of Willis, which bye the bye, published after his death, was in the posses-

His additions to medical knowledge, were mainly those in anatomy of the brain. This work with the assistance of Doctor Lower was based on real work in comparative anatomy as it embraced not only all possible human dissections, but very many of animals as well.

He was also a good clinician and left many excellent disease descriptions which are of interest even today.

The Circle of Willis can be better appreciated from the plate than from his description.



The plate accompanying Dr. Willis' description of the Blood Vessels which have since gone by the name "Circle of Willis." Original plate drawn by Sir Christopher Wren.

His discoveries of the sweetness of diabetic urine is as follows in his essay on "The Diabetes or the Peissing Evil."

"The theory of this disease being now explicated, there remains yet for us to show the reasons of the known symptoms, I suppose some of them to be manifest enough out of the premises, to-wit, wherefore there is so swift and copious an excretion of urine in the diabetes. But that the sick are fevourish, and very thirsty, the reason is partly, because the humours and the juices by which both the blood and the solid parts are moistened and refreshed, are by a too continual expense drawn forth by the Diuresis, or urinary evacuation, wherefore the throat is dry, and the praecordia are greatly

heated. But it seems more hard to unfold, wherefore the urine of the sick is so wonderfully sweet, or hath an honied taste; where rather on the contrary, if according to our Hypothesis the fusion of the blood and (which therefore follows) the profusion of the urine happens by reason of the combination of Salts, the liquor certainly impregnated with these should be rather salt than sweet. But why that it is wonderfully sweet like sugar or honey, this difficulty is worthy of explanation."

He discovered the spinal accessory nerve and his classification of the cranial nerves lasted till recently. His plate of the stomach shows ultra modern physiology. But to show how the state of the then knowledge held down even such minds as his, let us take a look at a bit of real polypharmacy. The following decoction to be drunk three or four times a day, "For an Empyaerna."

"Take a Harts-tongue, Speedwell, Agrimony, Colts-foot, Moufear, Sanicle, of each one handful, Maddar and Chervil-roots, of each one ounce, Red Cicers half an ounce, Raifins an ounce an half, boil them in four pounds of spring water to half, sweeten it with clarified honey, or with syrup of Mouse-ear as you take it, to your pleasure."

If a feaver be wanting, the following pills may be taken from one scruple to half a dram, evening and morning. "Take powder of Crabs-eyes two drams, Flower of Sulphur one dram, Sal Prunella half a dram, Spec. Diarrhodon Abbatis one scruple, Venice Turpentine washed, make a mass formed into small pills, or omitting the Turpentine take the powder from half an ounce to two scruples, twice a day."

Let it be added he advised these prescriptions only after incision.

Sydenham himself was no mean prescription writer. His laudanum could be filled to-day if written on the proper Harrison blank.

Sherry Wine	Pints 2
Opium	Ounces 2
Saffron	Ounces 1
Cinnamon in powder {	aa drachms 2
Cloves in powder {	

Mix and put into a vapor bath for two or three days until the liquor becomes of proper consistency. Strain and lay by for use.

Willis died of pleuro pneumonia, probably tuberculous, as both his son and wife had died of consumption, November 11, 1675, and was buried in Westminster Abbey.

Here are three men of practically the same period who made discoveries which had a tremendous influence on subsequent medicine, but which made very little impression at the time. In fact Sydenham makes no reference to Harvey and Harvey's influence

on Willis was but slight. The three were moderately successful in practice but not nearly so much as Wiseman and Radcliffe. As far as English medicine is concerned, there were only two men before them who had risen to distinction, Linacre and Caius, both a combination of scholar and physician and with perhaps the former trait predominating.

Harvey was educated at Padua, Caius also in Italy and Linacre not only at Florence, but even in the home of Lorenzo de Medici. This makes, I think, a direct line of influence from the Renaissance to the sudden revival of learning in England. In the Italian Renaissance one or two things stand out even at this distance. One of the first efforts of de Medici was the collection of all books possible and as a necessary sequence the writing of all books possible. The study of anatomy had its part in this revival of learning and dissection became quite a social treat, in fact, the Grand Opera of the 16th Century. The demonstrations were not alone for medical students, but like Neuman's modern clinics on syphilis were for the theological student as well, and in addition were frequently an invitation affair. That these occasions were of great interest is shown by the "Anatomical Lecture" paintings by many of the 17th Century artists. Pepys also describes the Anatomy of Febr. 27th, 1662.

"Up and to my office About eleven o'clock Commissioner Pett and I walked to Chyrurgeon's Hall (we being all invited thither, and promised to dine there), where we were led into the Theatre: and by and by comes the reader, Dr. Tearne, with the Master and Company in a very handsome manner: and all being settled, he begun his lecture, this being the second upon the kidney, ureters, etc., which was very fine; and his discourse being ended we walked into the Hall, and there being great store of company, we had a fine dinner and good learned company, many Doctors of Physique, and we were used with extraordinary great respect After dinner Doctor Scarborough took some of his friends, and I went along with them, to see the body alone, which we did, which was a lusty fellow, a seaman that was hanged for robbery. I did touch the dead body with my bare hand: it felt cold, but methought it was a very unpleasant sight. . . . Thence we went into a private room, where I perceive they prepare the bodies, and there were the kidneys, ureters, etc., upon which he read today, and Doctor Scarborough, upon my desire and the company's, did show very

clearly the manner of the disease of the stone and the cutting, and all other questions that I could think of. . . . Thence with great satisfaction to me back to the Company, where I heard good discourse, and so the afternoon lecture upon the heart and lungs, etc., and that being done we broke up, took leave and back to the office, we two, Sir W. Batten, who dined here also, being gone before."

The attitude toward writing is shown perhaps best by Evelyn in whose diary one frequently finds notes such as these:

"Mch. 1, 1666: To London and presented his Majesty my book entitled "The Pernicious Consequence of the New Heresy of the Jesuits against Kings and States."

"15th Febr., 1667: My little book in answer to Sir George Makenzie on Solitude was now published, entitled "Public Employment, and an Active Life with its Appendage, preferred to Solitude."

The influence of the Renaissance on Collections is seen also in Mead's books, Ruysch's Anatomical Collections, Sir Hans Sloan's manuscripts, and the many botanical gardens.

Harvey, Courtier, Sydenham, Cromwelian, Willis, Churchman, products, we may say of the civil wars, distinguished members of that group of wonderful intellects who continued the English Renaissance begun a short half century before. Differing in political allegiance, in religious allegiance, in method, they had this in common: opportunity to explore in then unknown regions, power to observe and that accurately, and ability to record their observations in lasting form. Each was surrounded by a few friends who paid due deference, but none founded a school in the sense of the Hunter or Munroe schools of a century later. This, not because any one of them lacked personality or ability, but rather on account of the lack of understanding of other physicians around them, still clinging to the old established things, a tendency which is extant even to this day.

The Uses of Saline Solutions in Surgery.

Chas. H. Breuer, M. D., Lincoln.

Sodium chloride solution in various strengths is one of the most useful therapeutic agents at the disposal of the physician and surgeon. It has been used for ages, discarded at times, and revived again. Now it has a permanent place in our armamentarium.

Its action has been for a long time imperfectly understood, leading to illogical applications. It is only recently through the aid of biochemistry, physical chemistry, physiology and bacteriology, that we have ascertained precisely what it does and how, and are able to use it more effectively.

As the ionic theory of dissociation of electrolytes has helped to explain the action of salt solutions, we wish to consider it briefly. Sodium chloride is a neutral salt. A neutral salt is a body resulting from the union of an electro-positive and an electro-negative ion or radical. When a salt is dissolved in water, it exists in the solution not only as a solution of the neutral substance but is partially dissociated into its electro-positive and electro-negative components. This dissociation is not the same as the chemical separation of the molecule into its elements, for the solution does not have the properties that a solution of these elements would have. In a solution of sodium chloride, we have the positive ion of sodium and the negative ion of chlorine, but the solution does not show any chemical signs of free chlorine or the element sodium.

The evidence for this dissociation is based upon the physical properties of salt solutions. For instance the boiling point of any solution is increased in proportion to the number of molecules dissolved; but in the case of neutral salts, we find the elevation of boiling point cannot be explained by the weight of the salt dissolved, and are led to conclude that there is a greater number of particles present in the solution than the number of molecules of the electrolyte. These are the ions into which the salt dissociates, each acting as a molecule.

Salts do not ionize completely; the more dilute the solution, the higher the per cent of ionization. Hence, the therapeutic effects of dilute and concentrated solutions will differ from each other. In considering the effects produced by the introduction of a salt into the blood or the tissues, we have to consider the action of the positive ion, the negative ion, and of the neutral salt; all of these factors are collectively concerned in what is known as "salt action." There are certain

properties and effects upon the system which are common to all crystallizable substances, and are spoken of as "salt action." These effects are to a large extent connected with the phenomenon of osmosis.

The effects of salt solution are due largely to the disturbance of the osmotic balance between the blood and the other tissues of the body. One of the results of this change is an increase in the flow of urine, due to an increase in the volume of the blood. If a solution of a greater concentration than that of the body fluids is introduced into the blood, there is a passage of water from the tissues into the blood to reduce the concentration to isotonicity. If a solution of less concentration than the body fluids is introduced into the blood, a sufficient amount of water will leave the blood for the tissues, to bring the blood concentration up to isotonicity. However, the amount lost will be less than the amount added, and there will be a total increase in volume of the blood. It follows, that addition of concentrated or dilute solutions of salt to the blood will result in an increase in volume, and consequently produce diuresis. Theoretically, only the salts and water should be carried off in this diuresis, but as a matter of fact it has been observed that the kidney is unable to separate completely the constituents which go to make up the urine, and hence we find that the other solids are also increased. Thus, in intoxications, where the blood and tissues are overcharged with poisonous substances, the use of salt solution by one of the methods to be mentioned later is very effective in eliminating poison from the body.

The physiological action of saline solution may now be considered under four heads according to the mode of administration: (1) Hypodermoclysis, (2) Intravenous or Intra-arterial Transfusion, (3) Proctoclysis, and (4) Locally on diseased tissue, either by external application or injection into the tissue.

By hypodermoclysis, the solution is introduced directly into the tissues, where it fills up the lymph spaces between the cells and is picked up by the lymph stream and gradually introduced into the blood stream. Here the action on the blood is mainly to increase the volume by supplying the needed fluid. The tissue cells modify the tonicity of the solution by withdrawing water or solid constituents,

as the case may be, and render it isotonic with the blood. This method is most useful in emergencies, where time is the greatest factor, and where time or facilities for the requirements of intravenous technic are lacking.

By intravenous or intra-arterial transfusion, the solution is brought directly into the blood stream, unchanged and unaffected by the body cells. Here it acts by modifying the tonicity of the blood itself. In cases of loss of blood from hemorrhage, it attracts the water from the tissues and increases the volume of the blood directly by its own bulk. In cases of depletion of the tissues from long-standing emesis or catharsis, as in cholera, it simply increases the volume of the blood, on which the tissues may draw to replete their necessary amount of fluid. In other words, when there is greater osmotic tension in the blood, the fluids will stream from the tissues into the blood current; if greater in the tissues, the current will be reversed.

In proctoclysis, we have an action similar to that in hypodermoclysis, plus the local effects on the splanchnic area, as the water is absorbed through the lymphatics and blood stream draining the abdominal area. This mode of administration is to be preferred in the case of any abdominal trouble, as peritonitis, collapse after extensive laparotomy, etc. In septic processes the solution dilutes the toxins in the blood and tissues, produces diuresis and catharsis, thus carrying off much of the toxic material. By this method we may increase the volume of the blood, raise blood pressure, relieve post-operative thirst, produce diuresis and often catharsis. Temperature is reduced and the vitality of the patient is raised so that he can tide over the dangerous period, until the patient's resistance can gain a foothold against the disease. Since Murphy introduced this method, many lives have been saved.

Very interesting have been the results of the recent investigations on the effects on the tissues of saline solutions applied externally in the form of moist, hot packs, wound dressings, and continuous baths. We have first the physical effect of altering the osmotic current in the tissues by various concentrations. If the solution is hypertonic, the fluids will be attracted from the tissues to the dressings, from within outward. Thereby, the absorption of toxic substances from the suppurating surfaces is stopped. As a result the patient at once feels relief; the effects are shown by the lowering of temperature and cessation of pain. The outward current brings fresh blood and body fluids to the spot which are effective in combating the infection, and the wound quickly heals.

Heretofore we have depended too much on antiseptics to combat infection, and in many

instances have added poison to toxin. As the osmotic current was from without inward, the effects of the absorbed antiseptic were added to the effects of the absorbed toxins. Cases of poisoning from phenol, iodoform, formaldehyde and bichloride of mercury are fairly frequent. These substances are useful enough in sterilizing instruments and utensils; but when we used them on living tissues, we must consider the additional fact that if we use poisons strong enough to kill or injure bacteria, we also injure the tissues and lower cell vitality. We have no specifically acting antiseptic which will kill bacteria but not body cells; our antiseptics are injurious to all living cells. But, our tissues secrete just such specific bacteriolysins, and our duty is to aid them in bringing these substances to the scene of action. Osmosis and saline solutions are our means to this end.

Most of us remember that when drainage was first introduced, a great transformation was brought about in the treatment of suppurating wounds. With drainage, the wounds healed better than when antiseptics were relied upon. All that hypertonic salt solution will do, is to secure good drainage from the tissues into the dressings. If the proper surgical drainage has been established, wounds will heal much better under hot saline dressings, if no antiseptics at all are used. Hence, surgeons are gradually abandoning dry antiseptic dressings in suppurating wounds.

The more concentrated the solution, the greater the difference in osmotic pressure. There is, however, a limit to the usefulness of increasing the concentration. If the solution is too highly concentrated, we get also the chemical effect, which is that of irritation. Consequently, for continuous dressings on suppurating wounds, I would recommend solutions double or treble the strength of isotonic solutions.

Saline solution is not an antiseptic in any sense of the word. We do not get the effect of the sodium or the chlorine. Such dilute solutions will not kill bacteria at all. I was unable to find any references in the literature to the action of strong salt solutions on pathogenic organisms. Dr. Miles J. Breuer,

working in our laboratory, finds that the inhibitory effect of salt solutions as high as 10 and 20 per cent on the growth of pus organisms, is so small as to be negligible as far as any antiseptic action in wound treatment is concerned. I desire to point out that in the treatment of infected wounds, we do not so much need an agent to kill the bacteria, as to prevent the absorption of the toxins, and give the body fluids a chance to fight the infection.

We wish to take up briefly the technic of preparation and administration of isotonic salt solution. The technic of preparation depends largely upon the use for which the solution is intended. Isotonic salt solution consists of nine parts of sodium chloride in 1000 parts of solvent. For proctoclysis (and in an emergency, for hypodermoclysis) this may be closely enough approximated by adding a heaped teaspoonful of salt to a pint of water. For proctoclysis, ordinary tap water is sufficient. For hypodermoclysis, and especially for intravenous injection, the solution must be made up accurately by weight, and with strict aseptic precautions, and with distilled water. Tablets of sodium chloride of the proper weight, convenient for making the solution, may be found on the market. The salt may be sterilized by heating to a dull red heat, the water by boiling for five minutes. The solution should be filtered through cotton. Strong stock solutions in bottles or sealed tubes may be kept on hand, and diluted to the proper strength for use. We wish to emphasize the fact that for intravenous injection, the strength of the solution should be accurate; otherwise hemolysis will result. Many of the untoward symptoms attributed to hemolysis are due to the use of hypertonic or hypotonic solutions.

By hypodermoclysis, the solution is introduced into the loose cellular tissue under the skin, whence it is conveyed by the lymph vessels into the blood stream. The indications for this form of administration are as follows:

Depletion

- Hemorrhage
- Severe purgation
- Continued emesis

Nervous causes

- Shock
- Suppression of urine from nervous causes
- Post-operative collapse and thirst, where proctoclysis is contraindicated.

Necessity for elimination

- Uremia
- Autotoxemia
- Eclampsia
- Septicemia
- Poisoning, with phenol, illuminating gas, etc.

It is contraindicated in cases where the tissues are edematous, as in the last stages of Bright's disease, diabetes, etc.

The technic of hypodermoclysis is so well known that we need not enter into full details. Only a few points may be emphasized. Asepsis must be rigidly observed. A slight lapse in this respect may entail very serious consequences. The injection should be made into regions where the subcutaneous tissue is loose, as under the breasts, in order that there may be room for the fluid, which is not at once absorbed. The temperature of the solution should be 100 to 110 degrees F. The absorption is much more rapid if two sites are injected simultaneously. The needle should be of as large a calibre as possible.

Continuous proctoclysis was introduced by Murphy and has been called after him the "Murphy drip." The indications are:

Peritonitis

Post-operative shock and thirst.

Collapse from anesthesia.

To produce diuresis and catharsis.

The only contraindications are inflammation or surgical lesions of the rectum.

There are several types of apparatus made especially for this purpose, but anyone may improvise one for himself. The reservoir, tubing, and tip are easy enough to manage; the only departure is the glass bulb necessary to enable us to watch the dripping of the solution. A medicine dropper with rubber bulb removed, inserted through a cork or rubber stopper into a larger glass tube, the medicine-dropper connected by the proximal end to the reservoir of saline solution, and the large glass tube connected with the tubing running to the rectal tip, will enable us to see the drops. The flow can be regulated by a screw clamp. As the pressure is determined from the point at which the drip takes place, it is this point, and not the reservoir, which must be elevated the required height (about 6 inches, or just enough to overcome intra-abdominal pressure) above the patient's hips. The pressure should not be too great; otherwise fluid will accumulate and its expulsion from the rectum will ensue. The rate of flow should not be ahead of that of absorption; about 60 to 80 drops per minute has been found to be approximately correct. To keep the solution warm, an electric light bulb may be kept lighted in the reservoir, partially immersed.

As much as 6 to 15 quarts have been absorbed in 24 hours; but if the pulse becomes too full or the patient develops rales, the drip should be stopped. The tip should remain in the rectum, as too frequent removal and insertion is irritating. In cases of tympany, or much gas, it is best not to use any clamp on the tube, as this may prevent the passage of flatus or regurgitation of fluid during vomiting. In these cases, the flow may be regulated by the height of the reservoir.

The indications for intravenous injection are the same as for the above methods, with the added condition that it is especially desirable to get quick results, as in sudden large hemorrhage or severe shock. The method is much more rapid, and com-

paratively less painful than the subcutaneous method. The process, if performed with proper care, is not nearly as formidable as usually supposed, and should be performed much more frequently than it is. The main requisite is rigid asepsis in preparation of the solution and injecting it. The preferable method of injection is through a needle, which may be thrust into the vein through the skin after sterilizing the latter with iodine. The antecubital area is the best site of injection. In case it is impossible to find a suitable vein with the needle, a vein may be cut down upon, a cannula inserted, and after the injection is complete, the vein tied. When the needle is used, the point of puncture may be sealed with a little collodion. About one pint in ten minutes is the usual rate of injection. About a quart may be given at a time.

Transfusion into the artery, as claimed by some operators, has the advantage that it has to pass through the capillaries and comes to the heart more gradually. Here, however, there is danger that the fluid will accumulate in the large venous trunks, and never reach the heart. Crile and Dolley claim a distinct stimulating effect on the heart from forcing the solution against the current through the arteries to the heart. For intra-arterial injection a cannula must always be used, as with a needle the solution may be injected between the coats of the arteries, and a dissecting aneurism caused; the fluid may accumulate around the artery and cause sloughing. The pulse and blood pressure must be closely watched. This method is not recommended, on account of its many dangers and difficulties.

Saline solution has been used for injection into nerve trunks in cases of intractable neuralgia, as sciatica. Lange claims that this is quite as effective as injections of cocaine, eucaine, etc. Saline solution has been used to fill bone cavities after operations, with marked success. The technic is the same as that with other substances used for this same purpose. Hemostasis is secured, the tourniquet removed, and the cavity filled with isotonic salt solution, and the tissues quickly closed without drainage.

The latest use of saline solution is in surgical dressings. The indications are any local inflammation and especially open contaminated and suppurating wounds; these may be either acute or chronic. The strength of the solution should be from two to four times as concentrated as anisotonic solution, depending mostly on the length of time which the application is to remain. It may be applied in the form of packs, or as a continuous bath for the part. The results that are obtainable by this method of reversing the osmosis and turning the current of tissue fluids from within outwards, are to say the least, surprising. The method has been extensively tried out in the European war, and there are numerous articles in the European literature speaking very favorably of it.

SUMMARY.

I. The physiological action of sodium chloride solutions depends on their physico-chemical properties, especially that of osmosis.

II. Salt solution isotonic with normal blood is used subcutaneously, intravenously, or per rectum. Augmentation of blood volume, production of diuresis, and aid in elimination. It is a valuable means of fighting infections; toxic, or depleted conditions.

III. Strong solutions of sodium chloride, as external wound dressings, are not antiseptics, but aid wound healing by their osmotic properties, and by promoting tissue drainage.

IV. The technic of preparation and administration is discussed.

Streptococcic LaGrippe and Its Relationship to Scarlet Fever.*

M. G. Wohl, M. D., and A. K. Detwiler, M. D.,
Omaha.

In previous communications (1) (Western Medical Review, March, 1916, Vol. 21, No. 32; Interstate Medical Journal, September, 1916) we have detailed our findings in cases of grippe and scarlet fever that occurred last winter in Omaha and vicinity.

Since then 50 more cases of the so called grippe were studied and, as on the previous occasion, the streptococcus hemolyticus was found as a predominating factor and hence the term "Streptococcic Grippe" has been suggested.

The methods of examination were similar to those of our former work; namely, direct smears from discharges of nose and throat, stained by Loeffler's methylene blue and by Gram; cultures were obtained from throat, nose and sputum upon blood agar, Loeffler's serum and bouillon; various other media were used from time to time for identification and isolation of the germs.

The results of our findings were as follows:

Streptococcus Hemolyticus in 20 cases.
Streptococcus and Staphylococcus in 10 cases.
Streptococcus and Pneumococcus in 7 cases.
Streptococcus and Diphtheroids in 3 cases.
Klebs Loeffler bacillus in 5 cases.

*From the Pathological Department, Nicholas Senn Hospital, Omaha.

Streptococcus, Diphtheroids and Pneumococcus in 5 cases.

We were unable to isolate the true bacillus of influenza in a single instance; in 15 of the cultures and in most of the direct smears from the throat we encountered Gram positive diplococci not unlike the gonococcus in morphology. Since our first communication a number of men have reported their bacteriological findings in studies of similar epidemics in their communities. Rucker (2) (New York Medical Journal, February 12, 1916, p. 294) found a Gram positive diplococcus in the twenty cases he studied; pneumococci in some instances, pneumococci and streptococci in 6 cases; bacillus of influenza in two cases (smears only). Rucker is inclined to look upon the diplococcus as the cause of the "grippe." However, one should bear in mind that diplococci of the above description are found in throats of healthy individuals and this, therefore, would hardly justify us in regarding them as the etiologic factor.

Anna Williams (3) (Boston Medical and Surgical Journal, March 2, 1916, p. 332) found streptococci in 26 out of 50 cases examined; pneumococci in 19 instances, bacillus of influenza in 9 cases. Sanborn (4) (Ceconi Boston Medical & Surgical Journal, March 23, 1916, p. 424) reports finding influenza bacilli in 3 cases out of 12. He also found in the original cultures streptococcus hemolyticus, streptococcus viridans, pneumococcus and micrococcus catarrhalis. Although he believes that the influenza bacillus is responsible for the grippe, yet as he admits, it is impossible to prove it, since streptococci and other germs of pathogenic properties have been found.

Williams & Burdick (5) (Medical Record May 13, 1916, p. 876) found the hemolytic streptococcus in 87 cases examined and do not mention the finding of the bacillus influenza.

Moody & Capps (6) (Journal of A. M. A., May 27, 1916, p 1696) found streptococcus hemolyticus in all of the 31 bacteriologically studied cases; streptococcus viridans and pneumococcus in all cases. Streptococcus mucosus occurred once; hemolytic staphylococci occurred nineteen times; influenza ba-

cilli twice; Friedlander's bacillus twice; micrococcus catarrhalis once.

Haysmer & Sucha (7) (Western Medical Review, Vol. XXI, No. 6, June, 1916, p. 286) report 150 cases of grippe in which they found streptococci as the chief etiologic factor and not in a single instance have they encountered the bacillus of influenza.

TABLE I.
Bacteriology of Reported Cases.

Name	No. of Cases	Strept.	Influenza	Other Micro Organisms
Mathers (8) Jour. A. M. A. Jan. 1, 1916, p. 30....	24	17	None	Pneumococcus, Strept. Viridans
Rucker, loc. cit.....	20	6 (Strep. & Pneu)	2- (Smears Only)	
Wohl & Detwiler				Diplo. Gram. Positive Strep. Viridians & Pneumoc
loc. cit.	80	32	None	Pneu. Staph. Diphth
Anna Williams loc. cit.	50	26	9	Pneu. Micro. Catarrh; Staph. B. Capsulatus
Sanborn, loc. cit....	12		3	
Williams & Burdick loc. cit.	87	87	None	Strep. Hemolyt. Pneu. Micro. Catarrh. Pneu. Microco. & Strept. Viridans
Moody & Capps loc. cit.	31	31	2	Strept. Viridans, Pneumoc. Microc. Catarrh.
Haysmer & Sucha loc. cit.	150	150	None	Strept. Viridans, Pneumoc.
Total	454	349 or 76.9%	16 or 3.5%	

From the above it is evident that in the present epidemic of grippe the bacillus influenza played a very insignificant role since it was found in only 3.5% of the cases studied bacteriologically.

The streptococcus hemolyticus must be ranked among the chief factors of the epidemic since it was present in 76.9% of the cases. Clinically, the present epidemic differed from that of 1899 and 1890. To illustrate the type commonly seen during the present epidemic we cite briefly a case.

Dr. L. Age 35. The patient feels indisposed for several days with general muscular aching. He takes to bed with nausea, headache and sore throat. Temperature 100 to 103 degrees; greatly prostrated; respiratory symptoms; irritating cough and mucopurulent expectoration. Physical examination: posterior pharynx injected, tonsils congested; chest and abdomen negative. Patient remains in bed six days, considers himself well. However, a recurrence of the fever, headache, and marked exhaustion, keep him in bed for another five or six days. Complications, frontal sinusitis and middle ear supuration.

While 60% of our cases ran a similar course, children had vomiting as a striking

symptom, with sore throat, high fever and extreme prostration. Among the most prominent complications in them were: 1. Enlarged cervical glands; in two of our cases suppuration occurred; and streptococcus hemolyticus was isolated in pure culture. 2. Middle ear suppuration. 3. Mastoid involvement. 4. Nephritis, as a rule of transient character and setting in during convalescence. 5. Meningitis. In two of our cases the streptococcus hemolyticus was isolated from cerebro-spinal fluid.

Rashes both erythematous and urticarial occurred and in some instances they were so pronounced as to leave one in doubt as to the diagnosis of scarlet fever and lagrippe.

A very striking feature of the present epidemic of lagrippe in Omaha and vicinity is the concomitant epidemic of scarlet fever. During the months of September, October, November and December, 1914, there were reported to the board of health of Omaha 13 cases of scarlet fever and during the same months of 1915 (the time when the epidemic of lagrippe was most prevalent) there were reported 341 cases, and during January, 1916, there were 331 cases of scarlet fever as compared with three cases in January, 1915.

A common observation during the present epidemic was the occurrence of the so-called grippe in older members of a family in which the children had typical attacks of scarlet fever. The simultaneous occurrence of these two conditions could hardly be ascribed to coincidence.

In an editorial of the St. Paul Medical Journal (9) (April, 1916, Vol. XVIII, No. 4), it is stated that about two years ago St. Paul, Minnesota, suffered an epidemic of scarlet fever wherein about a thousand cases occurred during the first six months of the year. During the fall prior to the outbreak so-called "grippe" was exceedingly prevalent. The bacteriological examination of secretions of the upper respiratory tract at that time revealed streptococci as the predominant organism almost constantly.

Dr. Frank Hall (10) (personal communication) informs us that in Kansas City the epidemic of lagrippe took a course similar to that in Omaha, i. e., in some families one

or two members would have lagrippe while the rest had scarlet fever.

In order to investigate further the relationship between grippe and scarlet fever a questionnaire was prepared and sent out to practitioners in all parts of the state of Nebraska. We desire to express our great appreciation for the cooperation of the physicians which made the study possible.

The points in regard to which information was specifically requested were as follows: Prevalence of the epidemic, sex and age at which the grippe was most common; complications (Otitis Media, Glandular Involvement, Nephritis, Lobar and Lobular Pneumonia, Erysipelas), whether or not rash accompanied the grippe; the bacteriological examination; the concomitant prevalence of scarlet fever; also, as to the employment of biological products (vaccines and sera) in grippe and scarlet fever; and the mortality of grippe. In all we obtained 60 reports which we believe are fairly complete and accurate.

Information in regard to prevalence of epidemic of grippe. All have replied in the affirmative. All the answers (100%) implied that the epidemic of grippe exhausted its force by April (the time when the questionnaire was mailed).

The age incidence is shown in Table II.

Age at which Grippe was most prevalent.				
Age Not Stated	Under 10 Years	10 to 25 Years	40 Years & Upward	
23	29	20	20	

If this permits of any deduction it will appear that age had little significance, as the ages of the cases ranged from 1 to 65 years.

The data obtained by us in regard to complications are highly instructive and are indicated in Table III.

Complications of Grippe.				
No. of Satisfactory Ans.	Otitis Media Occurred in	Enlarged Glands	Nephritis	Pneumonia Lobar
44	13.1%	19.2%	5.9%	4.7%
				Lobular
				5.2%
				Erysipelas, 1.1%

The nephritis in the cases under our own observation was of transient character and chiefly in adults. In one case the streptococcus hemolyticus was isolated from a sterile sample of urine.

Mastoiditis of varying intensity was observed in six cases of our series. This complication was unfortunately not given a place

in our questionnaire, so the frequency as observed by other men cannot be stated.

Two cases under our observation developed a fatal meningitis. One of these gave a previous history of grippe followed by middle ear suppuration and later developed brain abscess and spinal meningitis. The streptococcus hemolyticus was isolated from the spinal fluid.

The other case, a child 9 years old, with a previous history of grippe, developed spinal meningitis and streptococci were also found in the spinal fluid. Both cases proved fatal.

Information in regard to the rash in cases of grippe is illustrated in the following table:

Table IV.

No. of Satisfactory Answers	No Rash	Rash Present
43	22	21

The percentage of cases in which rash occurred cannot be stated since most of the answers read no or yes respectively. In our earlier cases rash was not seen. In our subsequent studies we observed a rash in about 20% of the cases. The rash varied from erythema to urticaria and was of transient character and not followed by desquamation.

Bacteriological reports from 9 men give the streptococcus as the predominating micro-organism; they state that the influenza bacillus was not found.

The frequency of recurrence of the grippe is indicated in Table V.

Table V.

No. of Satisfactory Answers	Recurrences	No Recurrences	Exact No. of Cases Given by
44	39	5	26

Recurrence Developed 13.7%.

The concomitant occurrence of scarlet fever and grippe can be seen from Table VI.

Table VI.

No. of Satisfactory Answers	No. of Positive Answers	No. of Negative Answers
44	27 or 61.4%	17 or 38.6%

Twelve of 27 answered that they had cases where one or two members of the family suffered with the grippe while the rest had scarlet fever. These figures point to a relationship between grippe and scarlet fever that can hardly be ignored.

The occurrence of streptococci in the throats of scarlet fever patients in greater abundance than in health has been proven by (11) Hektoen and others (Journal Am.

Medical Association, April 6, 1907, Vol. XLVIII, pp. 1158-1160). Streptococci were also found constantly in the blood of scarlet fever cases by Baginsky and Sommerfeld (12) (Arch f. Kinderheilkunde, 1902, Vol. XXXIII, I). In 100 unselected cases of scarlet fever Hektoen (13) found streptococci in the blood in all cases that recovered (Journal A. M. A., March, 1903, Vol. XL, p. 685).

In 27 unselected cases of scarlet fever in which we examined the throat and nose (14) (loc. cit.) we found streptococcus hemolyticus in 19 cases in pure culture. In the rest they were constantly present although mixed with staphylococci diphtheroids and pneumococci.

Agglutinins in sera of scarlet fever cases tested against streptococci from scarlet fever proved to be unspecific since streptococci isolated from cases of grippe and furunculosis were agglutinated in greater dilutions than those of scarlet fever. These findings are in accordance with those of Weaver (15) (Journal Infectious Diseases, 1904, 1, 91).

Experiments with guinea pigs passively sensitized with sera of scarlet fever cases and then reinjected with emulsions of streptococci gave results which in some instances were highly suggestive of anaphylaxis.

Whether some form of streptococcus is the sole etiologic factor of scarlet fever or a secondary invader is still sub judice. For practical purposes, however, it is immaterial since removal of streptococci either by local disinfectants or by raising the resistance to them by vaccines will do away with a very important factor in the clinical entity called scarlet fever. That the epidemic of streptococcic grippe has a close relationship to scarlet fever can be deduced from what has been said above.

Once this point is realized, careful attention to the destruction of the discharges from nose and throat will prevent dissemination of streptococci from patient to patient, and will possibly do away with the most important predisposing factor in the etiology of scarlet fever.

There was practically no mortality from the grippe per se, but the mortality reported

as 2% was due to complications, especially pneumonia.

CONCLUSIONS.

1. In the present epidemic of so called grippe the bacillus influenza played a very insignificant role.
2. Streptococcus hemolyticus was isolated in 76.9% of the cases bacteriologically studied by different men throughout the country.
3. The correct name for the epidemic therefore would be streptococcic la grippe.
4. Scarlet fever occurred in epidemic form in Omaha and other communities in Nebraska during the epidemic of la grippe.
5. The close relationship between the two conditions deserves careful attention from the etiologic, prophylactic and epidemiologic points of view.

Apparatus Used in the Treatment of Fractures.*

J. P. Lord, M. D., F. A. C. S., Omaha.

It has been my personal experience and general observation that general practitioners have too meager equipment for the general treatment of fractures. Ordinarily when a doctor has a case in the home it becomes

Some years ago I decided that our hospitals should have something that could be quickly assembled, so that it would not be the surgeon's responsibility to help construct above the bed a device for suspension. I therefore had assembled (Fig. 1) the materials which can be had in any country plumber's shop. There is considerable leeway in the adjustments, so that it will fit any bed, which makes it a very handy device. It may be taken apart and be very readily transported. Foot pieces for extension. (Figs. 4, 5 and 6).

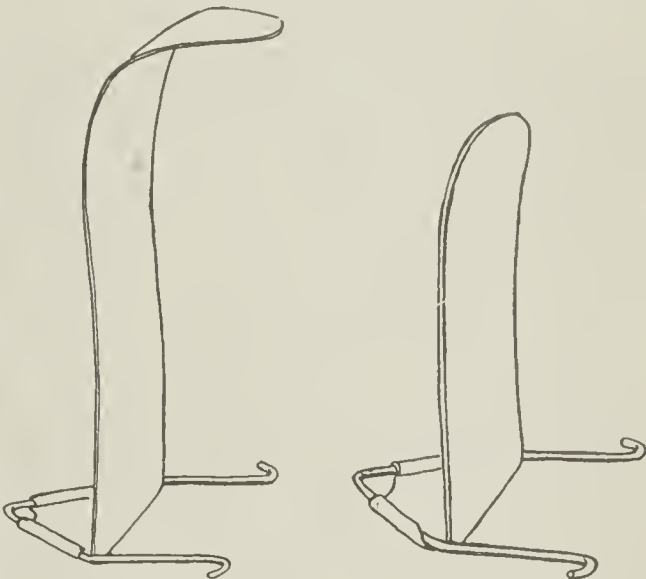


Fig. 4.
Figs. 4 and 5. Extension foot pieces used to avoid toe drop.
Width 2½ in., length 5 in. to 8 in.

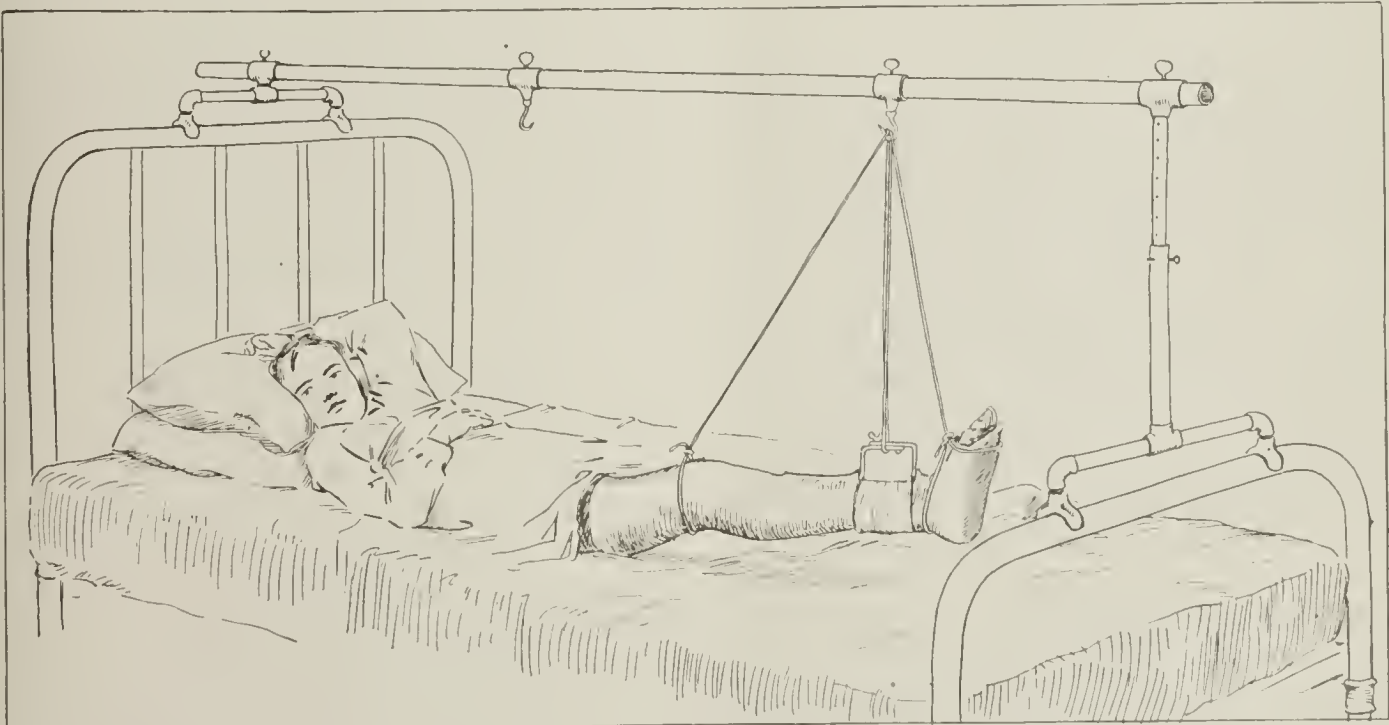


FIG 1.
A frame for suspension, made from 1½ in. gas pipe with connections. Adjustable to any bed.

necessary for him to construct or improvise apparatus for suspension and extension. These can be made by any tinner. Have a series of sizes of window weights, which are

(Continued on page 212)

*Read before The Nebraska State Medical Association, Omaha, May, 1916.

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For many reasons it has been deemed advisable to close Volume I of the Nebraska State Medical Journal with the December, 1916, issue. As may be noted the January issue is Number 1 of Volume II. The index of Volume I will be published as a separate leaflet and included in the February issue.

1917.

May 1917 bring to the people of Nebraska great moral and intellectual growth; increased material prosperity; a larger sense of public duty and an appreciation of the value of proper public health administration. May the New Year bring to every medical practitioner a sense of true scientific endeavor with a correspondingly increased personal efficiency.

To every practitioner of Nebraska, the cordial best wishes of the Nebraska State Medical Journal to you and yours.

New School of Medicine of University of Chicago.

A comprehensive plan designed to create one of the greatest medical centers in the world has been formally announced by the General Education Board and the University of Chicago. A large sum of money, approx-

imately seven and one-half million has been pledged by the Rockefeller Foundation, the General Education Board and the University of Chicago.

The school will be modeled somewhat upon the established plan of Johns Hopkins and is designed to provide the middle west with a research institution equalled only by the larger medical centers of Europe. The Presbyterian Hospital of Chicago is included in the transfer by which Rush Medical College will go out of existence. The staff of Rush Medical College and the staff of the Presbyterian Hospital will all resign and all positions will be filled by the new administration of the School of Medicine of the University of Chicago.

It is with great regret that hundreds of physicians over the middle west will note the passing of Rush Medical College even though it means bigger and more vital things for medical education. Rush Medical College occupies a distinctive place in the field of medical education and while in recent years it has not shown the scientific growth of many of the larger state institutions it has afforded an opportunity for the preparation of well trained men for the practice of medicine.

The emphasis in the projected medical school will naturally be placed upon research and investigation. This is eminently proper, but it will leave an enormous burden for the well equipped state medical schools in the education of competent medical practitioners. There must be an under-graduate department, but this will probably not be able to handle a larger number of students than has Rush. To Minnesota, Illinois, Michigan, Iowa, Nebraska, Indiana and Kansas must come the call for the under-graduate training of competent medical men and women.

The constructive genius and scientific foresight of Dr. Frank Billings is in the largest measure responsible for bringing to a focus the various forces centering in this new project. With a clinical and laboratory faculty of full-time men, with every material equipment this institution will go a long way toward placing American medicine still further forward in the eyes of the scientific world.

The Everpresent Adenoids.

The following editorial from the Omaha Bee contains some sensible observations on the effects of the removal of adenoids. That there may be a physical basis for criminal tendencies is not gainsaid, but these tendencies must be looked for as a result of poverty, starvation, alcoholism, drug addictions and the like. Adenoids have been blamed for more than their share in a lowered physical status. Clearing of the upper air passages is most desirable, but practical results must be looked for in improved aeration and consequently improved general health. Changes in the moral fiber of the individual must come as a reflex of the improvement in the general physical condition.

ADENOIDS AND THE CRIMINAL TENDENCY.

"The presence in court of a young man, pleading guilty to crime after he had been operated on for the removal of adenoids, may not shake the faith of advocates of reform through surgery, but it will not disturb the doubt of those who cling to the belief that the connection between man's moral and physical natures is not so intimate that a few snips of the scissors will make the coherence definite. Iconoclastic though it may seem, the psychologists have not yet fully established the accuracy of some of their conclusions concerning the dual nature of man. Clearing out the nasal passages and removing superficial obstructions from the pharynx certainly will conduce to better health and is quite as likely to enable the individual of criminal instinct to pursue his obliquity with even greater success. Theories on this point have not as yet reached the solid basis of law and perhaps until we have made further advance in knowledge and its application society will be as well served if we do not abandon all our old-fashioned notions about the punishment of those who turn to crime as a substitute for honest work."

—Omaha Bee.

Electrocardiographic Records.

In a recent address before the New York Diagnostic Society Dr. M. J. Mandelbaum calls attention to the fact that each large center of population should have one or more diagnostic institutes: places where cases may be received primarily for a thorough, complete physical examination. He calls attention especially to the limited number of hospitals in New York City where an electrocardiograph record of the heart may be obtained. No complete diagnosis of cardiac insufficiency may be made without such a rec-

ord, and it is only within the last few years that "heart stations" have to a limited extent been established.

In 1903, Einthoven, a Dutch physiologist of Leyden, Holland, introduced a new instrument to the medical world now familiarly known as the string galvanometer. By its means the minute electrical currents of the human heart while beating may be obtained in graphic form. By comparison of these graphic records with the findings determined by the usual diagnostic methods; with the findings acquired at post-mortems and with the results of experiments on animals, it is becoming obvious that Einthoven has placed within the hands of medical men an instrument of great diagnostic value. That this aid to diagnosis has found so little application in Nebraska is undoubtedly due to the complexity and cost of the installation necessary and to the fact that "heart stations" are not accessible to practitioners in general. Or, if they are accessible, great difficulty is often experienced in bringing a very sick patient and the cumbersome "heart station" into juxtaposition. So, as might have been foreseen, the string galvanometer has found its "place" in hospitals and as stated by Lewis: "The time is not distant when no hospital which undertakes the care of many of these (cardiac) patients may neglect the string galvanometer, if it is to rank amongst institutions whose design is proficiency."

In brief, the specific advantages to be gained by the study of electrocardiographic records are as follows:

(1) It gives a better means than any other diagnostic method of getting information concerning the all-essential heart muscle. The indications it yields of enlargements of the walls of one or other of the cardiac chambers are rarely at fault. It is the last court of appeal in differentiating right hypertrophy.

(2) In giving a separate record of auricle and ventricle and accurately defining their time relations it allows us to differentiate between different forms of slow and rapid heart action which are of totally different significance. To those who have attempted a record of the venous pulse, the ease with which far

more abundant information concerning the auricle can be gained with the galvanometer, speaks in eloquent terms.

(3) It tells whether the heart beat starts at the normal center for impulse formation or away from it; in the last case the rhythm is no longer under normal nervous control. Within limits it tells where the new beats originate. In this way it provides, in the analysis of all forms of heart irregularity, a method unrivalled in precision.

Apparatus Used in the Treatment of Fracture.

(Continued from page 209)

marked in pounds, thus you can handily use any amount of weight desired. Some years ago I found it desirable to have some device

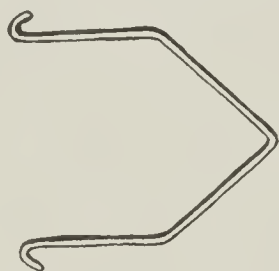


Fig. 6.

Fig. 6. Extension foot piece and spreader to be used with plaster cast and wire No. 7.

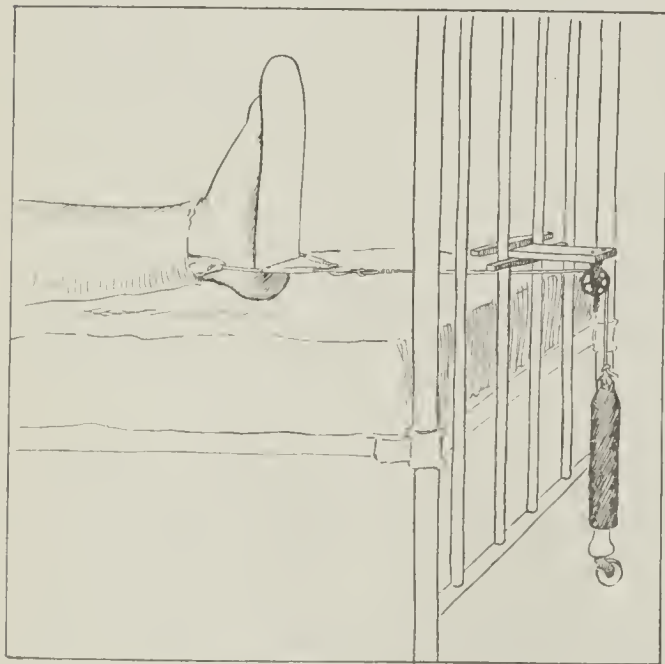


Fig. 7. Shows foot piece applied.

that would hold up a foot, to prevent the foot dropping while under extension. This is particularly desirable if there is any paralysis or very prolonged extension. The one curved at the upper end holds the bed clothes away from the toes. I had the wire loop made for cases that have a plaster cast, and Buck's extension.

The Special Fracture Committee of the American Surgical Association has reported that most of the bad results in fractures of the leg and thigh are due to inadequate extension. Now, nine doctors out of ten will use ordinary adhesive plaster, and the extension will break down and give way before your case is half over, and it will not permit proper extension any of the time. You should use mole skin and you should use plenty of it. I think doctors should be more particular about the material they use. One of the common faults of adhesive plaster is, that after practically loosened it pulls too much upon small surfaces, and thus produces skin irritation, and possibly blisters.

About twelve or fifteen years ago when we were wiring fractures, I decided that there was too much wiring and other interference—too much carpentering, and that we should avoid as much as possible the use of foreign materials. I then devised what I call an interrupted loop splint, to be incorporated in plaster. (Figs. 2 and 3). This gives you

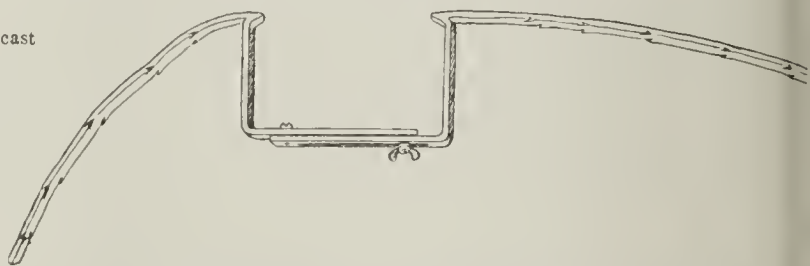


Fig. 2. Adjustable loop splint for interrupted plaster. Arms, 10"x3/4"x3-16", uprights 3" long. Crossbars 4 1/2" with 3/8" slot.

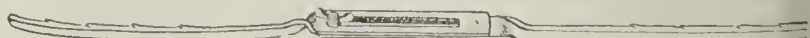


FIG. 3.

Fig. 3. To be used on under side of leg when extra strength is required. Arms 9"x3/4"x3-16". Cross bars 4" long.

an opportunity to adjust the fracture after you have placed the initial dressing.

Wyeth, some years ago, recommended allowing drills to remain when necessary to hold fragments in place. These are some specially long drills that I have had made for use in a geared bit stock. They are untempered, except at their points and will not break like the ordinary drill, and are used in the ordinary drill stock. This really answers every purpose of a drill that would cost ten times as much. Wyeth's drills were made for use in a handle but his apparatus is too slow and laborious. In a case of simple or compound fracture, we simply put one or

two of these drills through, at a tangent, to hold the fragments and allow them to remain for ten days or two weeks. We have thus avoided plating. We have not left foreign material permanently in the wound, and we are much more apt to get good results without infection than by plating. Splint (Fig. 2) has been in actual use for a dozen years.

At the Orthopedic Hospital, Dr. Orr, my associate, and myself, have been using a little motor saw and drill, put out by the Pneumatic Tool Company of Chicago, which costs \$35. It seems to answer every purpose and runs like a whirlwind; I have never known it to stall. The motor and cord are covered by two sterile muslin slips.

CASE REPORTS.

Infectious Streptococcic Diarrhoea of Dysenteric Type. Report of Four Fatal Cases In One Home.*

Geo. W. Covey, M. D., Lincoln.

The following four cases of fatal streptococcic enteritis merit reporting because:

- 1. Mortality 100% in this family epidemic.
- 2. The origin of the infection was definitely located.
- 3. Children in other families subjected to the same source of infection were ill, but being older, recovered.

There were in this household five children one year old or under, one child two and one-half years old and four girls ranging from twelve to eighteen years.

The disease was confined to the children under one year of age, four of the five succumbing. The one who lived was a malnutrition baby being fed no milk at the time the others became ill and for several days previous.

Those who died had milk almost exclusively. The child two and one-half years old takes a small amount of milk daily with other food. The other members of the family were not ill.

CASE REPORTS.

No. 1. Baby Doris: Eleven months, mother alive and well, no previous illness except said to be a "blue baby" at birth.

Baby was moribund when I was called and had been dead several minutes when I reached the house. The following history was given:

Thirty-six hours ago baby began having loose green stools, consisting largely of mucus and having a slightly putrefactive odor. She vomited a few times. Temperature not taken. Last evening she took her bottle well, though the diarrhoea continued and the nurse had not thought her very ill. She died at three a. m.

No. 2. Baby Lillian: Twelve months old. Baby had been rachitic and malnourished since birth. I had seen her and found her weighing ten pounds at ten months of age, and had put her on cod liver oil and phosphorous. During the last two months she has gained four pounds and was in every respect greatly improved.

When the first baby Doris died, Lillian was beginning to have frequent green stools with mucus. She was vomiting and had a rectal temperature of 102 degrees.

Physical examination: Pale, eyes sunken, fontanel depressed, constantly gaging, retains no fluid, abdomen scaphoid. She is bright, notices everything but has an anxious expression.

Occasionally a stool shows blood streaks.

Eighty-four hours after onset she died without convulsions or other symptoms of cerebral irritation.

Case 3: Baby Jack, seven and one-half months old.

When the first baby died, the attendant did not know that Nos. 3 and 4 were ill but in routine examination they were found to have a temperature of 102° and 103°, and in a few hours they were vomiting and having green slimy stools. Jack seemed to improve in about twenty-four hours, cried for food and was able to retain barley water by mouth. Suddenly on the fourth day he had a convulsive seizure, temperature arose to 104 degrees (rectal) and on the fifth day he died in a convulsion.

For several hours before death there were constant clonic spasms of the whole body.

Physical examination showed little besides temperature and clonic spasms. At times there was a doubtful positive Kernig's sign. No rigidity of neck. Fontanel depressed, abdomen scaphoid.

Case 4. Baby Marcella, eight months old, healthy, no previous diseases. Mother and father well.

Found temperature of 101.4° (axilla) at death of baby No. 1. Eight hours later vomiting and diarrhoea began. Stools as described for the other three. Unable to take any fluid by mouth from that time until death. She died at the end of the sixth day with temperature of 105 degrees (rectal) but with no symptoms of cerebral irritation.

Resume:

Of five children under one year of age four were ill, the four fed upon milk. The one was being fed barley water.

*Received for publication Nov. 9, 1916.

Rise in temperature—vomiting—diarrhoea—rapid emaciation—death—is the sequel of events.

Stools, one every thirty to sixty minutes, small—green—largely mucus—occasionally streaked with blood (in one case) slightly foul odor.

In only one of the four was there any evidence of cerebral irritation. A lumbar puncture should have been performed. It would in all probability have shown the symptoms to be toxic irritation and not infection.

Treatment:

1. Isolation.
2. Oleum Ricini once or twice.
3. Fluids: Barley water by mouth for those who could retain it and normal saline per bowel for all.
4. Bulgarian bacillus, one tube liquid culture daily per child.
5. A few doses of paregoric to one baby for pain.
6. Caffein and camphor to one baby for stimulation.
7. Chloroform to control convulsions in Baby No. 3.

Bacteriology:

As has been intimated the milk had to do with the illness of these children. Cultures taken from the stools grew almost pure streptococci.

Cultures taken from the milk as supplied them, grew large numbers of streptococci.

Cultures taken from milk from each individual cow showed streptococci in one specimen only. This cow was found to have about 1-1½ degree temperature and some wire cuts on the teats. The person milking her remembered that there had been moisture on her hand from these cuts. Unfortunately cultures were not taken from the cuts.

Children in three other families using this milk were ill with diarrhoea. They were older with greater resistance and all recovered.

General Remarks:

Diarrhoea of infancy and childhood may be variously classified and no classification is complete and satisfactory. One from Morse,

(1) forms a fairly good working basis but lays no claim to completeness.

1. Nervous diarrhoea. An increase in number of stools with decrease in consistency and with no other symptoms pertaining to the bowel.

2. Disturbance in equilibrium. Normally the powers of digestion i. e. quality and quantity of secretions and motility are sufficient for the proper food. If they are depressed either by local or general causes or if one or more food elements are in excess there may be diarrhoea the character of the stools depending upon the cause. Bacteria play no primary part in this disturbance.

3. Fermentative type: Bacterial action enters. Changes in the intestinal contents of fermentative or putrefactive type with resulting change in color, odor and appearance of stools takes place, accompanied by more or less of the signs of toxemia as fever, prostration, etc.

Theoretically no bacteria attack the intestinal wall or enter the circulation.

4. Infectious diarrhoea of either the dysenteric or cholera infantum type. The former, characterized by frequent stools largely of mucus and blood accompanied by marked constitutional signs as moderately and constantly elevated temperature, severe prostration and even death; the latter, by a large number of profuse watery albuminous movements and intense prostration, bear evidence of actual attack of the intestinal wall by bacteria and their probable entrance into the circulation. (Such complexes as Finklestein food intoxication and specific hypersensitiveness to a single food element are not included here).

The infectious diarrhoea is due to bacterial action. According to Morse (2) heat of summer favors this form of the disease by lowering the general resistance of the child to infection, and by favoring the growth of the offending organisms in the food stuffs outside the body.

The organisms themselves may be divided into three groups:

(1) The dysentery bacillus of Flexner or Shiga type.

(2) Others, including chiefly streptococcus, colon bacillus and *B. pyocyaneus*.

Of these, only the streptococcus can easily be identified by microscopical examination and without more or less elaborate cultural methods. It is more or less difficult to say whether or not one of the less common offenders such as the colon bacillus or *B. pyocyaneus* is the primary etiological factor even when present to a greater number than any

other bacteria. As to the pathogenicity of the dysentery bacillus there is no doubt.

Kendall and Hewes (3) have shown that the gas bacillus is undoubtedly the exciting factor in most cases where its presence in any considerable number is proven. It causes diarrhoea not only in infants but adults. Clinically diarrhoea from this cause cannot be distinguished from that due to other bacteria but Morse (2) gives a fairly simple method for determining its presence.

"A small portion of stool is added to a test tube of milk. The infected tube is then gradually brought to the boiling point of water in a water bath and kept there for three minutes. In this way all the bacteria not in the spore state are killed and the development of whatever spores may be present into vegetative cells is unrestrained by the presence of non-spore forming organisms. The tube is then incubated at body temperature for from eighteen to twenty-four hours. When the gas-bacillus is present the casein is largely dissolved (usually at least 80%); the residual casein is somewhat pinkish in color and filled with holes; the odor of the culture is much like that of rancid butter, as a result of the formation of butyric acid by the gas bacillus. Gram stained preparations made from the milk show rather thick short grampositive bacilli with slightly rounded ends. The fermentation is more easily observed if the milk after being boiled is put in a sterile fermentation tube."

From the standpoint of treatment, it is essential to determine which one of two general types of bacteria is the causative factor. It has been pointed out by several writers among them being Morse (2), Kendall and Hewes (3) and Smith (4), that the gas bacillus produces toxic metabolic products from its consumption of carbohydrates and harmless ones from proteins, while vice versa, the dysentery bacillus, colon bacillus, streptococcus, etc., produce harmless products from carbohydrate, the toxic products from proteins. Consequently in gas bacillus diarrhoea high proteid and low carbohydrate feeding using such things as albumin water and "Eiwise" or "casein milk", is indicated and in all other types of infectious diarrhoea a carbohydrate diet best suits the purpose. A 5% solution of lactose in water given frequently in small quantities, totalling as much or a little more than the usual quantity of food for 24 hours is a safe rule to follow. Later—barley or rice water may be added. A note of warning by Grulee (5) against too

high carbohydrate feeding is in order because irritation of the mucosa produces too much mucus which, when broken down by the organisms present produce the same end products as a protein. On the other hand starvation leaves the gut filled only with its own secretions which are of a protein nature, hence to be avoided.

The discussion of the ordinary views of treatment such as catharsis, opiates, bismuth, tannin, stimulants, fluids by bowel and subcutaneously, etc., have been purposely omitted because their use depends largely upon the individual case and the common sense of the practitioner. I would however discourage the somewhat indiscriminate use of opiates and so-called intestinal antiseptics often seen in the treatment of these delicate patients. It is a matter of nice discrimination as to when and how much opium to use, and I do not believe intestinal antiseptics are ever indicated.

BIBLIOGRAPHY.

- (1) Morse, J. L. Case Histories in Pediatrics.
- (2) Morse, J. L. "Infectious Diarrhoea." *American Journal of Medical Science*. Jan. 1915, pp. 17-30.
- (3) Hewes, Henry F. and Kendall, Arthur I. "The Gas Bacillus as an Agent of Intestinal Fermentation and Diarrhoea." *Boston Med. & Surg. Journ.* V. 166, p. 75.
- (4) Smith, Richard M. "The Acute Diarrhoea of Infants." *Interstate Med. Journ.* Vol. 20, p. 805.
- (5) Grulee, C. G. "The Nature of Ileocolitis from an Etiological Handpoint." *Journ. of Am. Med. Assn.* Sept. 27, 1913.

Selected Case Reports from the Clinic of the Nebraska Orthopedic Hospital December, 1916.

H. Winnett Orr, M. D., F. A. C. S., Lincoln.

1. A. D., age 9 from Hebron, Neb., was referred to the hospital in February, 1914, by Dr. U. H. Squires of Hebron. She had been lame since birth. Upon examination she was found to be suffering from congenital misplacement of the left hip. The head of the femur rested well up and back on the ilium and there was the wide perineum and characteristic gait of this condition. She had about 3 inches of actual shortening of the affected extremity and very marked atrophy.

Patients at this age are not ideal subjects for bloodless replacement. The procedure is much more difficult and the liability of accident to the femur or soft parts much greater. On February 19, 1914, however, she was anesthetized and the hip manipulated by the Ridlon method. This method consists

of moderate stretching of the flexors and adductors of the thigh (when necessary) then in acute flexion of the thigh by strong pressure on the knee the head of the femur is carried below and behind the acetabulum. In this position the thigh is slowly and carefully abducted and rotated outward. In this case only six minutes was required to bring the head of the femur into the acetabulum. A heavy plaster spica was applied with the thigh in flexion, abduction and external rotation. This cast was left on from Feb. 19 to May 4, 1914. At this time the thigh was partially extended and a new spica applied. A third spica with enough extension so that the patient could walk was applied in August and the final spica was removed in December 10, 1914.

Since that time she has walked without a brace or any other support and her gait has steadily improved. She returned for examination in February, 1916, and now on December 10, 1916. At the present time she has still a little limp which is due to a balance of about $\frac{3}{4}$ inch of shortening. This amount is all in the head and neck of the femur. She has a practically perfect anatomical and functional result otherwise.

Case No. 2. M. F. came to the hospital on September 28, 1916, complaining of pain and disability with tenderness over the right sacro-iliac synchondrosis and pain extending down into the right lower extremity. She was twenty years old and approximately six feet tall. She had suffered pain and disability for a period of 3 to 4 months. She had an enlarged thyroid and some exophthalmos, tremor, etc. She was put to bed at once with weight and pulley extension to the right leg which was continued until October 26, 1916, at which time a long plaster spica was applied and the entire pelvis and lower extremity immobilized. On December 4 the spica was removed and an Osgood sacro-iliac brace applied.

She has had practically no pain, whatever, since going to bed and now walks with comfort in her brace.

This was a typical case of sacro-iliac strain without dislocation, relieved by rest alone. Some such cases after long disability require manipulation of the sacro-iliac before application of the cast but those especially of young people if obviously simply strain, without displacement or infection, may be relieved in practically all cases in the manner described. In such cases as this the X-ray findings are usually negative, but in other cases with displacement or damage by infection the X-ray findings must be carefully considered.

Case No. 3. H. V. Came to the hospital on June 26, 1915. Nine years of age. She had a congenital or birth fracture at the junction of the middle and lower thirds of the right tibia with formation of a false joint at the point of fracture. The leg was hardly strong enough for walking.

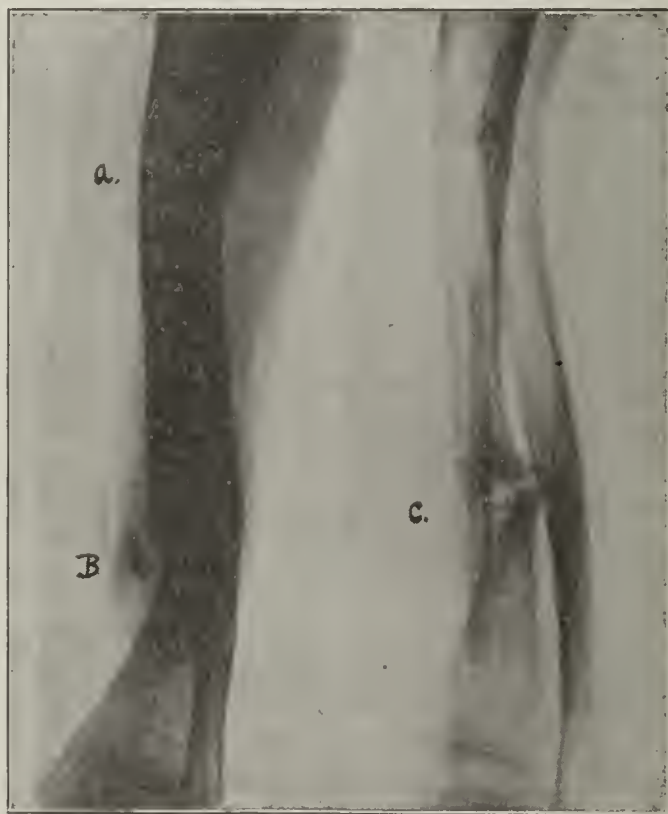
There had been marked deformity of the fibula at the point of fracture of the tibia and in the tibia

also above the point of fracture, so that she had a marked bow leg on that side.

On June 28 an osteotomy was done upon the bones of the leg at about the junction of the upper and middle thirds and the leg straightened without difficulty. The leg was then supported by means of a plaster cast until October 26, at which time an incision was made down to the point of the old fracture and a bone transplant was put in from the other leg.

Up to September, 1916, this failed to give firm union. On October 2, 1916, another bone transplant operation was done in which the recent teachings of Dr. Albee were carefully followed and a long enough transplant from the same bone put in so that the transplant bridged the fracture and carried well into the healthy bone beyond the eburnated ends of the fragments at the point of fracture. This is an important point to remember in this and other similar cases. (See X-ray illustrations).

The X-ray picture on November 8, 1916, shows firm union to have taken place and she is now going to have an entirely useful leg only about $1\frac{1}{2}$ in. short.



H. V. Congenital fracture and defect after osteoclasia at A, first bone graft at B and second bone graft at C.

A Case of Diabetes Associated With Renal Tuberculosis.

B. R. McGrath, M. D., and R. C. Woodruff, M. D.,
Grand Island.

Mrs. F. first seen at our office on Jan. 7, 1916, at which time she complained of frequent and excessive urination, general weakness and loss of weight. She herself volunteered the information that she thought she had diabetes.

An examination of a twenty-four hour specimen

on the following day resulted as follows: amount in 24 hours, 64 ounces; specific gravity, 1020; reaction, acid; albumin, none; sugar, 1.7%; diacetic and acetone, none; no casts or red blood cells, numerous pus and epithelial cells.

At this time she was placed on butter-milk for twenty-four hours and following this a carbohydrate free diet. An analysis of a twenty-four hour specimen a week later showed a total amount of 96 ounces with a specific gravity of 1010, a trace of albumin and no sugar, no diacetic or acetone. The microscopic examination was as before. Her diet was gradually increased but instead of gaining in strength, she complained of feeling much weaker.

About ten days after her first visit to the office we were called to see her at the house when she presented the following symptoms: Severe pain and soreness in the right side, which extended to the back. This had been troubling her for the past three days; loss of appetite and nausea, (the day preceding she had vomited twice); slight chills for the past two mornings with some temperature in the afternoons; slight swelling on the right side which she noticed only since she had been having pain.

Past history: Miscarriage eleven years ago from which she dates all her present trouble. She has had frequency of urination with some dysuria at times for the past ten or eleven years. Thinks that she averages between five and eight pints daily.

Family history: Two sisters who died of diabetes.

Examination: Temperature 100. Pulse 88.

The patient is a small poorly nourished woman, fifty-six years of age. The pupils react to light and accommodation. There is no disturbance of vision. The teeth have all been removed. The thyroid gland is firm and slightly enlarged on both sides with a cystic swelling about the size of a hen's egg on the right side. The lungs and heart are negative. The liver and spleen are not palpable. A palpable mass about the size of a grape fruit is found on the right side just below the costal margin. This is very tender and moves freely on breathing deeply. It is apparently the right kidney. The left kidney is not palpable or tender. The extremities are negative. The white blood count is 10,400. The urine shows a trace of sugar but is otherwise as before.

Cystoscopic examination two days later revealed a normal bladder with normal ureteral openings. Both ureters were catheterized with the following result: On the right side the flow was about 50 drops per minute with a specific gravity of 1001; a trace of albumin, no sugar, no casts, numerous pus cells and epithelial cells, no red blood cells, and no tubercle bacilli.

On the left side the flow was about twelve drops per minute with a specific gravity of 1028; albumin, plus; sugar, plus; numerous red blood cells and occasional leucocytes and epithelial cells. These were evidently from trauma. An X-Ray plate after

injection of ten percent argyrol shows the pelvis of the left kidney to be considerably enlarged with an enlarged shadow of the kidney itself.

Our diagnosis at this time was tuberculosis of the right kidney and operation was advised. On January 28, after patient was sugar free, she was operated by Dr. McGrath under ether anesthesia. The right kidney was removed and patient made an uneventful recovery. The kidney was about twice the normal size and weighed eight ounces, the capsule stripped with difficulty leaving a granular surface. The pelvis was injected with numerous small hemorrhages. On cross section the papillae were found to be hard and fibrous and there were a few nodules principally in the cortex of the lower pole. The cortex was decreased in amount.

There was some diacetic acid in the urine following the operation, but at no time did the ammonia content go above 4.5 gm in twenty-four hours. At the time of discharge (Feb. 24) the urine showed only a trace of sugar, no albumin and a few pus cells. At this time she was taking a limited amount of carbohydrates.

At present, almost a year later, she has no pain or temperature and she has gained in strength, enough so that she was able to take an automobile trip during this last summer. She has also gained slightly in weight. At present, on a limited carbohydrate diet she is passing about fifty ounces of urine a day with a specific gravity of 1018, no albumin, and at times a trace of sugar, 0.27% at the last examination. There are still a few pus cells in the urine.

This case has been of special interest to us.

First, because of the co-existence of the renal tuberculosis and diabetes. Also because of the marked exacerbation of the kidney trouble upon attempting the routine treatment for diabetes. While pulmonary tuberculosis and diabetes are not uncommon, there is very little in the literature on renal tuberculosis and diabetes.

Second, because of the marked improvement and apparent recovery after surgical intervention, especially so, in view of Elsners' statement that "tuberculosis with diabetes is uniformly fatal."

Third, the impermeability of the diseased kidney to sugar with the hyperglycemia of a well developed diabetes, and a resulting test of kidney function which is hard to contradict.

American Academy of Ophthalmology and Oto-Laryngology.

The twenty-first annual meeting of the American Academy of Ophthalmology and Oto-Laryngology was held at Memphis, Tennessee, December 11, 12 and 13, 1916. It was very well attended with practically every section of the country represented. The

scientific program was well-balanced and of unusual interest and value.

Ocular Tuberculosis and Tuberculin Therapy was presented by Drs. Spencer and Woods. Caution was advised in the use of the tuberculin, the tendency being to push the dosage beyond the point of safety.

Dr. Edward Jackson of Denver read a very valuable paper on the limitations of tonometry. He emphasized the importance of repeated readings in order to secure data that can be of value in each individual case.

Dr. Max Goldstein of St. Louis, Mo., presented a very graphic demonstration of the value of the oral method of teaching the deaf. A number of children of various ages were presented to show their remarkable progress in lip reading and conversation. Dr. Goldstein made a plea for giving the deaf child every possible advantage through increasing his efficiency by the oral methods.

Dr. J. M. Ingersoll of Cleveland, Ohio, read a paper on the Interpretation of Stereo-Roentgenograms of the Head, which was practical and threw new light on this very important subject.

Dr. J. W. Millette of Dayton, Ohio, delivered a paper on the after treatment of cataracts which brought out much valuable discussion on this important phase of our work.

Dr. Frank Todd of Minneapolis presented a very graphic demonstration of a case of Deviation Upwards of the Right Eye, Due to a Spasm of the Inferior Oblique, Secondary to Congenital Paresis of the Superior Rectus of the Left Eye, by means of a moving picture film, showing not only a very unusual condition, but emphasizing the value of the moving picture as a means of teaching ophthalmology.

Many other valuable papers were presented and thoroughly discussed.

The eye, ear, nose and throat men of the middle west and especially of Nebraska were honored by the election to the presidency of our colleague, Dr. W. L. Dayton of Lincoln, for the ensuing year. Dr. Dayton has been very intimately associated with the society since its organization and the honor was bestowed as a recognition of the splendid work that he has done.

Nebraska was represented at the meeting by Drs. Dayton, Hompes and Teale of Lincoln; by Dr. Tiesing of Columbus; and by Drs. Banister, Patton, Rubendall and Wherry of Omaha.

The success of the meeting was in no small measure due to the splendid hospitality of the profession and citizens of Memphis who did everything possible to make our stay in Memphis pleasant as well as profitable.

J. M. P.

State Secretary's Column.

The program Committee for the State Association meeting May 8, 9, 10, 1917, in Lincoln, invite any member who will contribute to our scientific program, to send at an early date the title of his paper with an abstract of the same. Your committee deem it imperative that all material for the program be in our hands by Feb. 15, 1917. This is necessary in order that a preliminary program may appear in our Journal pending the official program issue before our convention. Chapter 8, Sec. 2 reads: "The Committee on Scientific Work shall consist of the secretary, who shall be chairman, and the chairman and secretary of the Sections, who shall determine the character and scope of the scientific proceedings of the Association for each session, subject to the instruction of the House of Delegates or of the Association, or to the provisions of the Constitution and By-Laws. Fifteen days previous to each annual session it shall prepare and issue a program."

Joseph M. Aikin, Chairman.....Omaha

SECTION ON MEDICINE.

Homer Davis, Chairman.....Genoa

B. W. Christie, Secretary.....Omaha

SECTION ON SURGERY.

H. M. Hepperlen, Chairman.....Beatrice

J. S. Welch, Secretary.....Lincoln

NEBRASKA NOTES.

Dr. W. L. Johnson has located at Steinauer, Neb.

A move is on foot for the organization of a general hospital at Plainview.

Dr. C. F. Ballard of Havelock is reported as convalescing from a recent serious illness.

Dr. A. J. Stewart of Mitchell has associated with him in his practice Dr. C. R. Watson of Miller.

Dr. U. S. Harrison, recently house officer in the Santa Fe Hospital at Topeka, has located at Neligh.

The citizens of Kearney have inaugurated a Tag Day for the support of St. Luke's Hospital of that city.

Dr. Charles Zimmerer of Norfolk was married at O'Neill Thanksgiving day to Miss Margaret C. Fallon of that city.

Dr. Clarence R. Spradling of Hallam, Nebraska, was married December 17, 1916, at College View to Miss Ethel V. McWilliams.

Dr. Sadler of Hershey was injured when his automobile was struck by a freight train. He was thrown from the machine and sustained a broken leg.

Dr. G. J. Kadavy of Surprise and Miss Anna Kleptecor of Omaha were married at the home of the bride's parents in Omaha Tuesday evening, December 5th.

Dr. G. A. Cassidy of Omaha left Thursday for Placerville, Colo. He will take charge of the hospital and sanitarium at that place for a couple of months during the absence of the medical director.

According to word from the Sheridan, Wyoming, Medical Society there is a movement on foot to organize the Wyoming State Medical Society. The Sheridan County Society has appointed a committee to further the organization of the State Society.

Announcements have been received of the marriage of Miss Edith Barnes of Cody, Neb., and Dr. Blaine A. Young of Merriman, Neb., which took place at St. Paul Episcopal church at Merriman on Sunday, December 24. Doctor Young is a graduate of the University of Nebraska college of medicine. Doctor and Mrs. Young spent the Christmas holidays at Omaha and Malvern, Ia., and will return to Merriam this week-end to make their home.

On Wednesday evening, January 17, a banquet will be given at the Blackstone in Omaha, in honor of Dr. and Mrs. W. L. Dayton of Lincoln, Neb. Dr. Dayton was recently elected president of the American Academy of Ophthalmology and Oto-Laryngology, and the dinner in his honor will be attended by not only local, but Nebraska and Iowa, oculists and aurists. Wives of the specialists will also be included in the guests. Dr. J. M. Banister heads the committee of arrangements.

GENERAL NOTES.

Dr. Leonard Freeman of Denver was elected President of the Western Surgical Society at the close of the twenty-sixth annual session held recently in St. Paul. Omaha was selected as the convention city for the 1917 meeting. Dr. Arthur F. Mann was elected secretary-treasurer and Dr. B. B. Davis of Omaha Chairman of the Entertainment Committee.

Dr. Philip Mills Jones, San Francisco, editor of the California Medical Journal, secretary of the California State Medical Society, a member of the Board

of Trustees of the A. M. A., died Nov. 27th of pneumonia, aged 46. His widow died three days later of the same disease. Dr. Jones occupied a unique position as a leader of the organized medical profession of California.

In a recent report to President Butler of Columbia University Dr. Francis C. Wood, head of the Crocker Cancer Research Fund, makes a number of valuable observations on the use of radium in the treatment of cancer. Dr. Wood reports in part as follows:

"During the year a number of so-called cures were investigated, but it was shown that none possessed the slightest curative effect on tumors in animals; they cannot, therefore, be expected to influence human cancer.

"In continuation of work on the therapeutic action of radium, we have endeavored with large doses to influence a sarcoma of the guinea pig; this is slow growing and, therefore, more suitable for making tests of the value of this physical agent than are the tumors of mice, as the death of the animal from destruction of its bone marrow and a consequent severe anemia and leucopenia is less likely to result. While the size of some of the tumors treated was slightly reduced, in others growth was more rapid than before, and in no case was any cure effected.

"Dr. Frederick Prime has been able to add interesting confirmation to the work of certain zoologists on lower animals, in showing that radium, in small doses, has also a distinctly stimulating effect upon mammalian cells such as occur in tumors, while large doses just insufficient to kill the neoplasm may reduce its rate of growth considerably. This explains many of the reports by physicians treating human tumors to the effect that a growth disappeared but returned after being quiescent for a considerable period. In some of these human cases the tumors have remained latent for one or two years, only to grow later and resist any further radiumization.

"These experiments are thus of practical importance because they show that in treating a tumor of any size unless very large quantities of radium are used the portions of the tumor at a considerable distance from the radium may be stimulated and grow more rapidly, even though locally the tumor may diminish in size; and they point to the necessity of careful study of the nature, extent and distribution of a human tumor before a decision is made as to whether radium can justifiably be applied therapeutically.

"Despite the fact that it is becoming more and more evident, not only from our work but also from the published reports of others, that radium cannot be regarded as a satisfactory method for the cure of malignant tumors, there is no question but that it is the best palliative treatment we have in cases of inoperable recurrence after previous surgical removal of the main mass of the growth."

Surgeon General William C. Gorgas, U. S. A., accompanied by five members of the International Health Commission has recently returned from a

two months' trip up the Amazon. The purpose of the committee was the study of yellow fever and other tropical diseases. A report will be made to the Rockefeller Foundation.

Those who accompanied General Gorgas were:

Dr. Henry R. Carter of the U. S. Public Health Service; Dr. C. C. Lyster, Dr. Eugene R. Whitmore, Dr. William R. Wrightson, Dr. Juan Guiteras, head of the Cuban Public Health Service.

COUNTY SOCIETY NOTES.

Richardson County Medical Society.

The Richardson County Medical Society held a meeting December 20th in the office of Drs. Burchard & Burchard. The following officers were elected for 1917.

Dr. R. W. Fouts of Dawson, for President.
 Dr. E. R. Hays, vice president.
 Dr. S. D. Cowan, secretary and treasurer.
 Dr. A. W. Montgomery, delegate.
 Dr. C. T. Burchard, censor and alternate delegate.
 Dr. Miner of Falls City, Dr. Kelly of Dawson and Dr. Bishop formerly of Salem, were admitted as new members to the society.

Lancaster County Medical Society.

The Lancaster County Medical Society met at the Lindell hotel Saturday evening. Dr. H. H. Waite of the University of Nebraska presented a paper on "Public Health." He reviewed the history of public health in the state and in Lincoln and advocated the enactment of legislation providing for one central executive health officer for the state, to hold his place by examination. He emphasized that the state health officer should be an expert, a real executive head, with full authority in matters concerning the public health, and that the office should be kept free from politics. This proposal was originally advanced by Dr. Fox, United States public health officer, who was in the city last year in connection with a health survey. At the close of the address the members discussed the matter thoroughly and are said to be generally in favor of it. Dr. E. S. Wenger was reelected as a delegate to the state medical association which meets in Lincoln next May. The following officers were elected to serve during 1917:

Dr. Harry H. Everett, president.
 Dr. George Walker, vice president.
 Dr. J. J. Hompes, secretary.
 Dr. Harry Flansburg, treasurer.
 Dr. E. W. Rowe, censor.

Scottsbluff Medical Society.

The Scottsbluff County Society met in Scottsbluff December 18, 1916, with nineteen members present as follows:

Dr. Platz and Dr. Kotlar of Torrington.
 Dr. Fox of Morrill.
 Dr. Evans, Dr. Stewart and Dr. Watson of Mitchell.
 Dr. Logan of Bridgeport.
 Dr. Shike, Dr. Knode and Dr. Young of Gering.

Dr. Mantor of Sidney.

Drs. Moore, Pheln, Faught, Jones, Hadnith, Stoop from Scottsbluff.

Dr. Mantor of Sidney was present and gave an interesting talk relative to medical legislation and public health matters. The next meeting of the Society will be held in Gering, January 16, 1917.

The officers for 1917 are as follows:

Dr. R. P. Stoop, president.
 Dr. Robt. C. Knode, vice president.
 Dr. Clyde N. Moore, secretary.
 A banquet was held at the close of the meeting.

Johnson County Society.

The annual meeting of the Johnson County Medical Society was held in Tecumseh, Thursday, and was well attended. A business session was held at the office of Dr. T. E. Fairall at 4 o'clock p. m., at which the following officers were elected for the coming year:

Dr. J. M. Curtis, president.
 Dr. S. E. Conley, vice president.
 Dr. Fairall, secretary-treasurer.
 Dr. C. H. Davies, delegate to state meeting.
 Dr. A. B. Cramb, alternate.

In the evening a banquet was held at the Arcade hotel, the menu being greatly enjoyed. Retiring President Dr. Dora M. Judkins-Davies gave an address, and this was followed by a talk on "Spinal Curvatures and a New Spinal Brace," by Dr. H. Winnett Orr, of Lincoln. Dr. E. W. Rowe of Lincoln spoke of "Uterine Hemorrhage," and Dr. J. M. Mayhew of Lincoln of "Treatment of Tuberculosis." Dr. Zehmer of Lincoln gave "Catarrhal Conditions of the Eye, Ear, Nose and Throat," and the efforts of those to speak were interesting and greatly appreciated.

At the close of the banquet Dr. Rowe outlined the work of the federal government in Nebraska in the interests of health and sanitation. Recently the government, upon the solicitation of the state society, sent a Mr. Fox here to look into conditions from every angle as they effect both the public and the medical profession. A resolution was adopted favoring the Fox recommendations, and the coming Nebraska legislature will be asked to take steps along the line suggested.

The Johnson County Medical Society in annual session, after listening to an able talk on the "Fox Report"—as dealing with Nebraska Health Department needs—and after due consideration and discussion of the subject, unanimously adopted the following:

Be It Resolved, That the Johnson County Medical Society, a unit of the State Society, recommend and support incorporation into a bill for legislative enactment the so-called "Fox Report" as detailed by its author.

Be It Further Resolved, That a copy of this action be incorporated in the minutes of the Society, and we instruct our Secretary to transmit like copies to our Senator and Representative the coming ses-

sion of the State Legislature, the State Medical Journal and other press.

Loup Valley Medical Society.

A number of physicians from Loup Valley met recently in St. Paul and organized the Loup Valley Society. The following officers were elected:

Rr. Raynor, Cushing, president.

Dr. Main, Loup City, first vice president.

Dr. Halderman, Ord, second vice president.

Dr. Smith, Ord, third vice president.

Dr. Longnecker, Loup City, secretary and treasurer.

The following committees on by-laws was elected:

Dr. Minnich, Palmer; Dr. Holmes, Wolbach, and Dr. P. M. Pedersen, Dannebrog. Committee on entertainment: Dr. Dodd, Boelus; Dr. Holmes, Wolbach, and Dr. Arasmith, Palmer.

The following were in attendance: O. Grothan and H. Y. Bates, St. Paul; Thomas Minnich and Dr. Arasmith, Palmer; J. F. Hart, Elba; P. M. Pedersen, Dannebrog; Dr. Raynor, Cushing; Dr. Holmes, Wolbach; Dr. Dodd, Boelus.

Nance County Medical Society.

The Nance County Medical Society met in Genoa Tuesday evening, Dec. 5th. The members were entertained by Drs. Davis and Williams. Dr. C. H. Newell of Omaha, who was in the city on professional business, gave a very interesting talk. Those present at the meeting were Dr. and Mrs. J. F. Johnson of Fullerton, Dr. and Mrs. McRae and Dr. and Mrs. Howard of Albion, Dr. and Mrs. King and Dr. and Mrs. DeLanney of Belgrade, Dr. Ohaver of Fullerton, Dr. Newell of Omaha, Drs. Davis and Williams and Miss Fay Kadel of Genoa.

Saline County Medical Society.

The Saline County Medical Society held its annual meeting Tuesday, December 12, at Crete. The following officers were elected:

Dr. S. W. Warder of Friend, president.

Dr. Truman I. Wigam of Dorchester, vice president.

Dr. Porter F. Dodson of Wilber, sec'y-treasurer.

Dr. F. J. Stejskal of Crete, delegate to state society.

Dr. F. J. Farwell of Friend, alternate.

Dr. F. J. Stejskal of Crete, censor.

Dr. Frank Hamilton of Friend, censor.

Dr. H. W. Quirk of Crete, censor.

Dr. F. J. Stejskal read a paper which received many favorable comments. It was discussed by all present. The meeting was followed by a dinner. Those present were Drs. Fletcher, Farwell, Frank Hamilton, S. W. Warder and E. J. Cluver of Friend; W. H. Pallett, F. J. Stejskal, M. R. Byrnes, A. A. Conrad, W. M. Elliott and H. W. Quirk of Crete.

Furnas County Medical Society.

The Furnas County Medical Society met at Arapahoe, Sunday, December 10th. Following a dinner the society adjourned to the office of Dr. J. K. Muldoon. Officers elected for 1917 are as follows:

Dr. McGabe of Holbrook, president.

Dr. Johnson of Wilsonville, vice president.

Dr. Cone of Oxford, secretary.

Dr. Brewster of Beaver City, delegate.

Dr. Muldoon of Arapahoe, alternate.

Burt County Medical Society.

The Burt County Medical Society held its annual meeting at Lyons, December 5th. The following officers were elected for 1917:

Dr. H. W. Benson, Oakland, president.

Dr. A. E. Westevelt, Craig, vice president.

Dr. S. A. Swenson, Oakland, secretary-treasurer.

Dr. Herbert Cooper, Craig, delegate to state convention.

Dr. A. E. Westevelt, Craig, alternate.

Dr. M. L. Hildreth, Lyons, censor.

Dr. S. A. Swenson, Secy.

Thayer County Society.

Dr. Henry of Hebron is president of the Thayer County Medical Society for the coming year and Dr. P. E. Milbourne of Davenport is secretary and treasurer.

Buffalo County.

County officers for the year 1917 are as follows:

L. M. Stearns, Kearney, president.

C. K. Gibbons, Kearney, secretary-treasurer.

Douglas-Sarpy County.

County officers for the year 1917 are as follows:

J. H. Vance, Omaha, president.

A. F. Tyler, Omaha, vice president.

Roy A. Dodge, Omaha, secretary-treasurer.

Holt County.

County officers for the year 1917 are as follows:

E. T. Wilson, O'Neill, president.

W. P. Hombach, O'Neill, vice president.

J. P. Gilligan, O'Neill, secretary-treasurer.

Washington County.

County officers for the year 1917 are as follows:

J. R. Murdock, Blair, president.

J. B. Anderson, Kennard, vice president.

G. A. Langstaff, Blair, secretary-treasurer.

Agreement

With Southern Surety Company and Medico-Legal Defense Committee.

In order to correlate medical with legal defense in indiscriminate malpractice suits the Medico-Legal Defense Committee of the State Association has consummated an agreement with the Southern Surety Company of St. Louis. This agreement, for members who have defense policies with the Surety Com-

pany, gives the State Association Committee jurisdiction over the medical evidence.

AGREEMENT.

THIS AGREEMENT, entered into this twenty-second day of August, 1916, by and between the Nebraska State Medical Association, acting by and through its Medico-Legal Defense Committee, hereinafter called the Association, and the Southern Surety Company, a corporation, organized under the laws of the State of Oklahoma and doing business at St. Louis, Missouri, hereinafter called the Company, WITNESSETH:

WHEREAS, the Association is obligated to its members to perform for them certain services in the defense of claims or suits for negligence or malpractice which may be brought from time to time against such members by persons to whom medical or surgical services have been rendered, and the Association has for the purpose of carrying out its obligations to its members in that behalf, constituted what is known as the Medico-Legal Defense Committee of the Association, with full power to act in all such matters, and,

WHEREAS, the Company is engaged, among other things, in the business of issuing contracts to physicians and surgeons in the State of Nebraska whereby the Company becomes obligated to provide legal defense and pay certain indemnity in connection with such claims or suits for negligence or malpractice, as more fully appears by the terms of the policy of insurance issued by the Company in such cases, and,

WHEREAS, the Association and the Company desire to co-operate in carrying on the defense of the claims and suits above referred to, it is therefore mutually agreed by and between the Association and the Company that the Company will pay to the treasurer of the Association ONE AND NO/100 (\$1.00) DOLLAR annually for each member of the Association who carries a policy of insurance for that year with the Company, in consideration of which the Association will perform the following services in connection with all claims or suits against policy holders of the Company, without any charge against the Company therefor other than the payment above referred to:

The Association will upon receipt of notice of any such claim or suit refer the matter at once to its Medico-Legal Defense Committee which committee will, in conjunction with the Company's attorney, make all necessary and proper arrangements, from a medical standpoint, for the defense of the said claim or suit. In this connection the Medico-Legal Defense Committee will consult with and fully advise such attorney with reference to the medical features for the defense of such claims or suits and assist him in every way, from a medical standpoint, in preparing the cases for trial and on the trial of the cases, provide without any expense to the Company,

such expert medical testimony as may be necessary and proper for the defense.

It is the intention of the parties to this agreement that the Association and the Company shall co-operate throughout in the investigation and handling of such claims and suits, the Association giving particular attention to the medical theories and policies of the defense and bearing all expenses in connection therewith, while the Company will give particular attention to the legal theories and policies in each case, employing a competent attorney or attorneys and paying the fees of such attorneys, as well as court costs, except the fees of expert medical witnesses. In the event of disagreement, the Association reserves the final decision and control of the medical theories and policies to be pursued in the defense of such suits, and likewise the Company reserves the final decision and control with reference to the legal theories and policies to be pursued.

IN WITNESS WHEREOF, the Association has caused this agreement to be executed by its Medico-Legal Defense Committee, duly authorized by the Association for that purpose, and the Company has caused the signature of its President, duly attested by its Secretary, and its corporate seal to be hereunto affixed the day and year first above written.

NEBRASKA STATE MEDICAL ASS'N.	} Its Medico- Legal Defense Committee
By A. S. von Mansfelde	
By J. S. Welch	
By Joseph M. Aikin	

SOUTHERN SURETY COMPANY,

By C. S. Cobb, President.

Attest:

E. G. Davis,
Secretary.

WITNESSES:

Harlan A. Bryant
E. W. Rowe

AMENDMENT TO AGREEMENT ENTERED INTO AUGUST 22nd, 1916, BY AND BETWEEN THE NEBRASKA STATE MEDICAL ASSOCIATION, ACTING BY AND THROUGH ITS MEDICO-LEGAL DEFENSE COMMITTEE, AND THE SOUTHERN SURETY COMPANY, A CORPORATION DOING BUSINESS AT ST. LOUIS, MISSOURI, WITH RESPECT TO THE DEFENSE OF CERTAIN CLAIMS OR SUITS FOR NEGLIGENCE OR MALPRACTICE, AGAINST MEMBERS OF SAID ASSOCIATION.

It is further mutually agreed by and between said Company and said Association, that this agreement may be canceled and terminated by either party after one year from the date thereof, by giving not less than ninety days written notice to the other party, of its election to terminate said agreement on a date to be named in the notice. Said agreement shall then remain in full force and effect until the date specified in the notice, and on said date shall be fully and completely terminated with respect to any and all claims or suits presented to or made

against any member of the Association subsequent to the said date named, but as to any and all such claims presented or made prior to the date specified in said notice, the terms of said agreement shall remain binding and be carried out by and between the Association and the Company.

It is further agreed that this amendment shall be attached to the original agreement dated August 22nd, 1916, and shall form a part thereof as fully and completely as if incorporated therein before the execution thereof by the parties thereto.

IN WITNESS WHEREOF, the Association has caused this agreement to be executed by its Medico-Legal Defense Committee, duly authorized by the Association for that purpose, and the Company has caused the signature of its President, duly attested by its Secretary, and its corporate seal to be hereunto affixed the day and year first above written.

NEBRASKA STATE MEDICAL ASS'N.	} Its Medico- Legal Defense Committee
By A. S. von Mansfelde	
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By Joseph M. Aikin	

SOUTHERN SURETY COMPANY

By C. S. Cobb, President.

Attest:

E. G. Davis,
Secretary.

WITNESSES:

Harlan A. Bryant
Nye F. Morehouse

Emphasis is placed upon the importance of making an early diagnosis and this followed by vigorous treatment with salvarsan and mercury. The arsenical preparations being given intravenously while the mercury is administered by inunctions or intramuscularly. The iodides are considered as having very little effect on the specific organism of the disease.

The time when the author gives the patient the assurance of a positive cure appears to be too early. This standard is the finding of normal spinal fluid after discontinuance of all treatment on at least two occasions one year apart, with no signs of the disease on physical examination.

The part of the work treating of the disease in its effects on the various systems and organs is well illustrated and shows very well that in order to know the disease well one must know all of medicine.

A. A. J.

Book Reviews.

Syphilis. By Lloyd Thompson, Ph.B., M.D., Physician to the Syphilis Clinic, Government Free Bath House; Visiting Urologist to St. Joseph's Hospital; Consulting Pathologist to the Leo N. Levy Memorial Hospital, Hot Springs, Arkansas; First Lieutenant, Medical Reserve Corps, United States Army; Member of the American Urological Association and the American Association of Immunologists. Octavo, 415 pages, with 77 engravings and 7 colored plates. Cloth, \$4.25, net. Lea & Febiger, Philadelphia and New York, 1916.

This volume takes up clearly and concisely the important methods of diagnosis and treatment of syphilis in the different stages of the disease. Each subject is treated briefly but the main points are well illustrated.

At the present time when there is such a varied opinion as to the value of the different laboratory tests used in making the diagnosis and the many methods of treating the disease it seems that this volume will be most useful to the physician in general practice as well as to the specialist.

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No. 2.

Mouth Infections in Systemic and Remote Disease.*

A. D. Dunn, M. D., Omaha.

The recent investigations into the nature and meaning of focal infections in disease shows us that medicine is rapidly becoming truly comprehensive and that the greater its comprehensiveness, the larger becomes its possibilities of service. The medical investigator is ceasing more and more to focus on a small bit of protoplasm. He is coming to realize that the ideas of the body to be gained from studying cells alone is as distorted as the ideas to be gained of the architecture, functions, and administration of a building by the study of a few different kinds of bricks with their interstitial mortar. It is the function of the whole that interests him. If a part or a process fixes his attention temporarily, it is only to study it in its relationships to the whole. The medical man's efforts become directed towards obtaining composite pictures, moving pictures if you like. The living organism for him is an incessantly changing complex of physico-chemical phenomena in unstable equilibrium determined by internal and external states or stimuli. Anything in static equilibrium is dead. It is these ever changing conditions which constitute life in health and disease that demand the physician's attention. In the incompleteness of present knowledge of the physics and chemistry of the earth's crust, of which living things are but a part, the medical investigator must grope more or less scientifically for the conditions within the organism and within the environment (and focal infection

is essentially an environmental problem) which give rise to disease. The history of focal infections in their bearing on systemic and remote disease is an example of this groping. Systemic infection from localized infection harks back to the days of medical tradition. The layman is fearful of blood poisoning but the foci he fears are the result of traumata which penetrate the skin. Infections of the tonsils, jaws and bony sinuses, etc., as seemingly innocent sources of general trouble have long been perceived dimly but the tremendous significance of focal infection in general diseases has just been established on a firm basis by the work of the Presbyterian Hospital group inspired by Frank Billings (1) in co-operation with the Memorial Institute for Infectious Diseases, The Otho S. A. Sprague Memorial Institute and the Pathological & Research Department of St. Luke's Free Hospital Dispensary, all in Chicago. The pendulum may have swung too wide at the present moment, but focal infection as a problem to be met and solved in systemic and remote disease, is not likely soon to be cast among the medical discards.

Definition.

"A focus of infection may be defined as a circumscribed area of tissue infected with pathogenic micro-organisms" (Billings 1). The location of such foci is usually in tissues communicating with mucous or cutaneous surfaces. The common locations are teeth, jaws, faucial or pharyngeal tonsils, mastoid, maxillary, ethmoid, sphenoid and frontal sinuses, bronchi and bronchiectatic cavities, gall bladder, appendix, and genito urinary tract. Tonight we are to consider only dental and

*Read before the Omaha-Douglas County Medical Society, January 23, 1917.

associated infections but the fundamental principles underlying focal infections are the same everywhere.

The buccal foci of infection are: (1) pyorrhea alveolaris, (2) alveolar or apical abscess, (3) unerupted teeth, especially third molars, (4) maxillary sinus disease secondary to apical abscesses and infected root canals.

Pyorrhea Alveolaris.

Pyorrhea Alveolaris (a name proposed by Rehwinkle of Chillicothe, O., 1877) commonly called Riggs Disease, is considered by Bass & Johns (2) to be due to the endameba bupcalis which organism they claim can be demonstrated in all pyorrhea lesions of sufficient extent to be diagnosed. The etiologic proof of this organism has not gone beyond the demonstration of its constant presence in pyorrhea. Koch's postulates have not been fulfilled. Sandford & New (3) treated with emetin and alcresta tablets thirty-three carefully controlled cases of pronounced pyorrhea in all of which amebae had been demonstrated. Negative smears were obtained in from four to seven days but there was little abatement of the pyorrhea, altho many of the patients felt better. These patients then had all the deposits removed and the teeth thoroughly cleaned by competent dentists. No medicines were used. After this treatment marked improvement was noted. Eight obstinate cases that had undergone adequate dental treatment but that still showed marked pyorrhea were treated with emetin for from two weeks to a month. The results were no more encouraging than in the first altho the amebae disappeared from the smears. These results while not conclusive are suggestive. The presence of amebae probably means nothing except as they may pave the way for invasion by organisms of the streptococcic group. I have not yet been able to convince myself of the great importance of pyorrhea as a focus of infection except as it gives rise to a pericementitis and thus indirectly to dento-alveolar abscesses. The surgical principle of the closed focus should hold in the mouth as elsewhere.

The Dento-Alveolar Abscess.

The dento-alveolar or apical abscess is un-

questionably the most important mouth focus from a focal infection standpoint because it is closed. Its presence if the peridental membrane is destroyed means a dead tooth. The formation of an abscess and inflammatory granulation tissue around the tooth follows the fundamental principles that govern sequestrum formation. A tooth may live with a destroyed pulp provided the peridental membrane (periosteum) is not destroyed. When the peridental membrane is destroyed the tooth is dead, becomes a foreign body and is reacted to by the surrounding tissues in the same manner as foreign bodies elsewhere in the body. Were it in a sterile locality the tooth might become encysted. In a region of constant infection such as the mouth it becomes the seat of an abscess. Moorehead (4) estimates that, allowing for bodily defenses, not more than twenty-five per cent of all root canals treated may be considered safe, that only ten per cent of dentists may be considered competent to undertake difficult root canal operations, and that only ten per cent of the people have sufficient means to pay for the requisite skill for such work. Therefore devitalization is an act not to be undertaken lightly and is fraught with some danger, for it must be emphasized that killing the nerve of a tooth means destruction of the pulpal artery which carries much the same significance as would destruction of the central artery to a long bone. Many observers are inclined to view peri-apical infections in devitalized teeth as a metastatic phenomenon. This is taking the long way around. Instances pointing towards this mode of infection are on record, but advocates of this manner of infection as the usual one, are basing their opinion largely on belief rather than on proof and the burden of proof lies with them.

Incompletely Erupted Teeth.

Only within the last few years have I come to appreciate the importance of impacted teeth, especially third molars, as a cause of diverse troubles. The X-ray is frequently the only means of demonstrating this condition. In several instances I have been astonished at the amount of confined pus which

appeared on extracting these teeth. At this point I want to beg the neurologists pardon for a short sally into their preserves on the subject of neuralgia. A patient comes to us and tells us he has a pain in his head and he usually adds that it is in his nerves. We wisely translate the patient's words into Latin, call it neuralgia and credit ourselves with a diagnosis. I am convinced that some of us will see the day when the word neuralgia is obsolete. Impacted molars, peri-apical and dento-alveolar abscesses are among the frequently unrecognized sources of neuralgia both as reflex stimuli and as sources of infection for inflammatory disturbances in nerves at a distance.

Maxillary Sinus Infection.

Maxillary sinus disease is a common sequence of apical trouble. Brophy estimates that fully seventy-five per cent are of dental origin. Rhinologists place the percentage much lower but it is not at all unlikely that the medical profession under-estimates the frequency of dental origin for this trouble. A maxillary sinus infection furnishes all of the pre-requisites of focal infection: closed cavity, poor possibilities for drainage, and a rich vascular supply.

Pathology.

As stated earlier it is the closed cavity or pocket that is dangerous. When an infection is confined under pressure, involvement of the adjacent tissues with thrombosis of vessels occurs. Disintegrating thrombi send showers of infected emboli into the circulation. The result of repeated insults may give rise to a general sapping of the patient's vitality without any apparent localization of the infection or to remote localized infections if the organisms invading the circulation come up with terrain suitable to their needs. As shown by Rosenow oxygen tension plays a big role in bacterial life within the body (oxygen is only one of the chief factors in the environment. Water, and carbon dioxide, being of equal importance) (5). Low oxygen tension accounts for the predilection of certain strains for the synovial membranes, peri-articular tissue and for the tendonous insertions of muscles in myalgias. In tissues pro-

vided with a limited blood supply the condition is aggravated by further diminution of blood supply from emboli caught in the small vessels. The permanent impairment in blood supply resulting from past insults predisposes to re-infection by organisms which take kindly to a low oxygen supply. Thus it is seen that specificity is a problem in biological chemistry. Organisms in an alveolar abscess become dangerous for remote tissues when the conditions under which they are living in the jaw approximates conditions found in tissues at a distance e. g. the soil condition at the base of the mitral valve in certain streptococcus viridans infections. With these facts in mind and our eyes open to the body as a whole instead of to dissociated parts we can see how endocarditis, myocarditis, thyroiditis, appendicitis, cholecystitis, neuritis, ulcers of stomach, and duodenum, arthritis, etc., may all be explained by slight variations in the physico-chemical states of host and parasites. This emphasizes again the theory of conditions as against specific, isolated, integral causes.

I wish to cite briefly several illustrative cases:

Case 1. Miss R. P. consulted me two years ago on account of a dull constantly aching interscapular pain of three weeks duration which had been preceded for some time by a certain amount of discomfort. The patient was incapacitated and any movement of the back caused severe pain. A thorough examination revealed one peri-apical abscess. Removal of the tooth brought relief in twenty-four hours and complete disappearance of her symptoms in a week.

Case II. Mr. H. D., age 53, complained of a "poker" back of three years duration, which had been treated by many doctors and at "Springs," and of stomach trouble. A diagnosis of myalgia was made and a dento-alveolar abscess was removed as the only apparent focus. The back improved extraordinarily but recurred with an aggravation of his stomach trouble which was later diagnosed ulcer. An ulcer cure was successful, but improvement in the back was slow. One and a half years later the patient stated that he "felt like a ten year old."

Case III. Myself. Two years ago I would be awakened nearly every night by a dull pain in my right arm which on movement would become quite severe and which interfered in the day time with driving and percussion. Films of the teeth revealed an unsuspected peri-apical abscess. Removal of the tooth brought immediate relief.

Case IV. Mrs. G. W. J., was first seen about two

years ago on account of symptoms associated with an anemia approximating the pernicious type. No material gain was made in over one year's treatment which included a four weeks hospital stay. A decided improvement in the anemia with disappearance of the general symptoms followed the removal of some apical abscesses three months ago. I may add that Dr. W. O. Bridges of this city has recently made some interesting observations on the association of profound anemias with focal infection.

I fully realize that the above observations are open to the **post hoc propter hoc** criticism but the cases were carefully controlled and in order to avoid suggestion the patients were always given to understand that relief would not necessarily follow the removal of the focus. It must not be inferred that one is always rewarded with brilliant results. Whoever determines to search out and remove focal infections for the cure of general and remote hitherto exquisitely chronic or incurable conditions must steel himself to many disappointments. We have no way of determining after we have found a focus whether it is the portal of entrance. We find numerous dento-alveolar abscesses which are harmless bystanders while a latent gall bladder or an innocent appearing tonsil contains a buried focus to be revealed only by operation but which is responsible for the trouble. Even after we have removed the primary focus the question arises as to whether the bodily defenses will be able to overcome the organisms which have already taken up their abode at a distance from the primary focus. It must be remembered that the removal of a responsible focus merely closes the door to further infection from that one source. Again a latent gall bladder, for example, which has been infected from a primary focus may continue to feed the fires after the original focus has been removed. I must confess that I tackle the treatment of cases of "focal infection" with much trepidation because the pitfalls are numerous, the disappointments many, and I have learned that even after the most careful warnings and explanations to the patient to whom no promises are made, discredit and unkind criticism is often the reward. From the physician's standpoint a surgical death would often be preferable.

Old Age and Chronic Interstitial Nephritis.

Arterio sclerosis with its congener chronic interstitial "nephritis" takes on more of a personal interest with each of us from year to year. The old guard alcohol, syphilis, overeating and overwork still strut thru the literature and text books with syphilis the only real soldier in the cause. The great role of syphilis in arterial disease has been conclusively established. Alcohol and overeating depend for their reputations on prejudice, clinical, opinion and some hazy laboratory experiments. Their role is secondary and if they be considered as causes it is only as they contribute to the general strain and overwork thrown upon the vascular system. It has been shown that low oxygen tension is one of the factors essential to the growth of certain strains of streptococci. It is held with good reason that the factor that determines the location of spirochetes in the perivascular tissues of the vasa vasorum is the extremely low oxygen tension. The low oxygen tension of the vessels walls should therefore fulfill at least one biological requisite for the growth of streptococci, a problem that has not yet been worked out. It is a well known clinical fact that chronic arterio-sclerosis often follows in the wake of chronic infection. It may be easily observed that old age is commonly associated with good mouths and that chronic interstitial nephritis and arterio-sclerosis are commonly associated with badly groomed mouths.

Rules of Treatment.

To date I have formulated the following rules of action in regard to removal of foci of infection:

- (1) Removal of all possible foci should be urged in all patients suffering from serious and crippling diseases in which the laboratory has shown the direct bearing of foci of infection.

- (2) All likely atria of infection should be closed in every case of compensated valvular heart disease where there is even a few years of expectancy.

- (3) Cases of "run down," "lack of pep," physical exhaustion and innervation, should

not be sent on time consuming and finance crippling vacations or sojourns at "springs," mountains, or sea coast, until all demonstrable foci of infection are sought out and removed. This search should always include a Wasserman test.

(4) In conditions of uncertain etiology with which the laboratory has not yet shown the definite association of focal infection such as chronic interstitial nephritis, arterio sclerosis, chronic infectious processes in the central nervous system, certain neuralgias and neuritides, multiple sclerosis, primary and secondary anemias, chloroses, Graves disease, nephrolithiasis, pyelitis, etc., removal of obvious foci should be undertaken.

(5) My experience has left me uncertain as to how far to go in advising the removal of apparently innocent foci discovered in the routine examination of patients for trouble not associated with foci or infections—theoretically of course, they should be removed. It is to be remembered however that proper mastication of food still has a bearing on health.

The problem of mouth infection is so vast that one cannot show even a bird's eye view in the allotted time. I have devoted my efforts largely to the discussion of a few of the fundamental principles underlying focal infection in general and mouth infection in particular.

In conclusion I wish to emphasize the following points:

(1) In the light of our present knowledge some readjustments in dental and medical practice must take place. Dentistry is not an art apart but a highly specialized branch of medicine with a very narrow but important field.

(2) It is to be remembered in treating focal infections that a dental surgeon is dealing with only one of several possible factors.

(3) The X-ray is the most reliable method of determining the existence and state of mouth pathology, yet it reveals only differences in densities—therefore it is after all a very limited and coarse method.

(4) The vital thing for the dentist is not

how to preserve diseased teeth but how to prevent teeth from becoming seriously diseased. Dentistry that strives to preserve the function of the teeth at the expense of the general health is not constructive but destructive and in the end may be pernicious.

(5) The vital thing for the physician is to appreciate the possible far reaching and remote consequences of mouth infection, to insist in such cases that the mouth be freed from diseases, and to know when it has been.

LITERATURE.

(1) Focal Infection. The Lane Medical Lectures, by Frank Billings, Sc. D. (Harv.) M. D. (D. Appleton & Co. 1916).

(2) C. C. Bass & F. M. Johns—Journ. A. M. A. Vol. XIV, No. 7, 553—(1915).

(3) Sanford & New, The Mayo Clinic, Page 25 et seq. W. B. Saunders & Co., 1916, and Surgery, Gynecology & Obstetrics, 1916. XXII-27-33.

(4) Frederick B. Moorhead, Jour. A. M. A. LXVII, No. 12, p 846 (1916).

(5) L. J. Henderson—The Fitness of the Environment. MacMillan Co., New York, 1913.

Blood Chemistry in Constitutional Diseases.

Miles J. Breuer, M. D., Lincoln.

Most practitioners and surgeons are not able to keep informed on the latest developments in diagnostic and laboratory methods. This is because the literature is too scattered and fragmentary; articles appear in numerous journals, each treating of a small detail of the subject, so that in order to obtain the proper outlook, one is required to do a great deal more reading than the average doctor has time for. Nevertheless there is much of the new material that is not only intensely interesting, but eminently practical and quite accessible to the practitioner. The purpose of this paper is to collect and present in a general way, avoiding all details of technic and all involved theorizing, those newer methods in blood chemistry, which have made our knowledge of the condition of the patient in nephritis, diabetes, and gout, so accurate, and which have so profoundly influenced our prognosis in these conditions.

The constituents of the blood that interest us in this work, are total non-protein nitro-

gen, urea nitrogen, uric acid, creatinine and sugar. These all occur in constant concentrations in the normal individual, and by the mechanism of elimination through the kidney, are held in a definite equilibrium. The amount of non-protein nitrogen is 25 to 30 gms per 100 cc; and about 15 grams are eliminated in 24 hours partitioned as follows: (1):

Urea	25 (12gm N) 85%
Creatinin	1.5 5%
Uric Acid	0.5 2%
Ammonia	0.5 4%
Rest N	0.5 4%

The greater part of this eliminated nitrogen is exogenous, and is in the form of urea. It comes from the breaking down of ingested proteins, and consists of those amino-acids which the body finds it cannot utilize. The exact amount of urea therefore depends on the amount of protein ingested. Creatinin is entirely endogenous, and is very constant in concentration in the blood, and in the amount eliminated, in the normal person. It is increased in fever, as it is a product of tissue metabolism. Uric acid is partly endogenous and partly exogenous, coming partly from the food we eat, and partly from the tissue metabolism. Uric acid comes from the breaking down of nuclear material, and is increased in the blood and urine after a diet rich in cells, as liver or brains. Ammonia also comes from the amino acids of the ingested proteins, the chemical process involved in its formation being very similar to that of formation of urea. In health, the ratio of the ammonia to the urea is constant. In conditions where much acid is produced or ingested, ammonia is formed to neutralize the acid, and the urea nitrogen is drawn upon so that the ratio of ammonia to urea is increased. The concentration in the blood of the different constituents in the normal body, is as follows: (1)

Non-protein Nitrogen.....	25 to 30 gm per 100 cc
Urea Nitrogen	12 to 15 gm per 100 cc
Uric Acid	1 to 1.5 gm per 100 cc
Creatinin	1 to 2.5 gm per 100 cc
Sugar	0.10 percent

It will be seen that urea exists in the body, in twenty times as high a concentration as creatinin. It takes twenty times as much

work for the kidneys to eliminate urea as creatinin. Uric acid is the most difficult of all to eliminate, as it is very difficultly soluble. This will be seen by comparing a table of ratios of concentrations of the constituents in blood to that in urine. (2)

Uric Acid	1 to 20
Urea	1 to 80
Creatinin	1 to 100

Creatinin is seen to be the easiest to eliminate. Therefore, in conditions where there is slight damage to the kidneys, uric acid is the first to be retained in the body. When creatinin is retained, it indicates a much more severe involvement.

Let us apply this to the diagnosis of gout. In the laboratory we find that in this condition, there is an increase of the uric acid in the blood. That does not indicate any severe lesion of the kidneys; it may indicate none at all. It merely means that even the normal kidneys are not able to eliminate the increased quantities of difficultly soluble uric acid. In an arthritis of other origin we will not find this increase of uric acid. However, there is also an increase of uric acid in severe renal conditions, where the diseased kidney is unable to eliminate the normal amount of uric acid, thus backing it up in the blood. To differentiate such a condition, it is necessary to make at the same time a determination of the other nitrogenous constituents of the blood. Creatinin and urea are not increased in gout, but are increased in nephritis. Another fact illustrative of these principles, is that in a person with normal kidneys, the nitrogen content of the blood is not increased by the purins in the diet; but this is the case in persons with renal insufficiency. Therefore, unless the subject is afflicted with renal disease, the preliminary purin-free diet is not necessary in making the determination of uric acid. (6)

It is in nephritis that blood chemistry is of striking value. We are just beginning to realize that there are many serious renal conditions with no urinary findings. A patient may have severe and dangerous kidney lesions, without showing any trace in the urine of albumin or casts. There are a number of new functional tests for the kidney, depend-

ing for the most part on the power of the kidney to handle certain substances unusual to it, as phenolsulphonphthalein, potassium iodide, or lactose; these, and the renal test meal (7) (8) for testing the concentrating power of the kidney, have given excellent results. However, an analysis of the blood gives us an accurate idea of just how the kidney is handling the everyday substances with which it constantly has to deal. Thus, in a chronic nephritis, we find an increase mainly in the urea content. The amount of the easily eliminated creatinin is not affected, while uric acid, though difficultly eliminated, is formed in the body in such small amounts that there is still a sufficient margin of kidney function for its elimination. But in a severe nephritis, either acute or in the last stages of kidney destruction, we find an increase first in the uric acid, and then in the creatinin.

The creatinin is of great prognostic value. When its amount in the blood begins to increase, it points to a dangerous involvement of the kidney. Thus far, the experience of those who have worked with it is, that when the amount is over 5 milligrams per 100 cc of blood, the patient does not recover (3). By means of the creatinine, the prognosis is clearly indicated while the phenolsulphonphthalein may be negative, and the urinary findings show nothing whatever.

Studies on the rate of elimination of urea have given much information in regard to kidney function. Ambard was the first to formulate these laws, which are as follows:

1. If the concentration of urea in the urine is constant, the rate of elimination varies as the square of the concentration in the blood.
2. If the concentration of urea in the blood is constant, the rate of elimination varies inversely as the square root of the concentration in the urine.
3. Other factors being constant, the rate of elimination varies with the weight of the individual.

From these, a formula is derived, which will not be given here, which applies to the normal rate in a person of average weight.

McLean, (4) by substituting constants of different values, derived a formula based on Ambard's laws, with the scale of 100, so that the rate of urea excretion is given in per cent of the normal. To determine the index, it is necessary to estimate the amount of urea excreted in the urine over an observed period of time, and to estimate the urea concentration in the blood, at about the middle of this period. This index enables us to know exactly how efficiently the kidney is eliminating urea, and is even more sensitive a test than the urea determination of the blood, though its prognostic value is not the same as that of creatinin. This index is lowered in all cases of nephritis; in reviewing the literature, one is struck by that fact that practically 100 per cent of cases of nephritis on which the test is performed, show a lowered index. (Other conditions showing a lowered index, as anemias, intoxications, etc., are usually clearly enough differentiated from nephritis clinically.) This index has also been found lowered in cases where the phenolsulphonphthalein test was normal.

The manner of performing the tests may be reviewed briefly, though space forbids going into details of technic. For the determination of creatinin, the blood is laked with water, the protein precipitated with picric acid and filtered out, and sodium hydroxide added. The color resulting after 10 minutes, is then compared with the color of a standard solution in a colorimeter. (9)

To estimate uric acid, the blood is coagulated by heat, the proteins precipitated with alumina cream, the purin removed with ammoniacal-silver-magnesia-mixture; the color for colorimetric comparison, is developed by adding potassium cyanide, and a reagent composed of sodium tungstate, hydrochloric and phosphoric acids. (9)

The total non-protein nitrogen of the blood is determined by first precipitating with phosphoric acid; then digesting with phosphoric-sulphuric acid, adding the Nessler-reagent (KI and HGI₂), and comparing with a color standard (10). In estimating the urea of the blood, use is made of the property possessed by urease, the ferment present in the soy bean, of transforming urea

into ammonium carbonate. The urease is allowed to act on the sample of blood, and the resulting ammonia determined colorimetrically, with the aid of Nessler's reagent. (10)

The dextrose in the blood is best determined by Benedict's method (11). The proteins of the blood, after laking, are participated with picric acid. After filtering, sodium carbonate, and a further amount of picric acid are added, and the resulting color compared with that of a standard solution in a colorimeter.

The importance of estimating the sugar in the blood is just beginning to be recognized. The finding of sugar in the urine has only a relative and incomplete significance. We know, for instance, that it is possible to have a glycosuria without a hyperglycemia, due to the inability of the kidney to retain the sugar. The significance and prognosis to the patient of such a condition, is far different from that of a true diabetes mellitus.

The converse of the above statement is still more important. There may exist a hyperglycemia without a glycosuria. The normal concentration of sugar in the blood is 0.1 percent. Different investigators give different values for the point at which the blood concentration is manifested in a glycosuria. There is some difficulty in determining what the normal threshold point is, and for that reason the sugar estimation of the blood is doubly important. The sugar content of the blood may reach a high point, without producing glycosuria. A diabetic may have kidneys relatively impermeable to sugar. In advanced diabetes complicated with nephritis, the extent of glycosuria or lack of it, is a very poor guide to hyperglycemia, since the nephritis has lowered the permeability of the kidney to sugar. Ridding the urine of sugar without the guidance of a blood determination, is therefore all the more dangerous for its appearance of safety; it leaves the patient with a high sugar percentage of the blood, with its attendant danger of complications and acidosis; and it is not equivalent to the establishment of a carbohydrate tolerance; instead, it places the patient further from

this point every day that he is allowed to continue in such a condition.

It is the sugar content of the blood that is important, not that of the urine. In fact, the sugar content of the urine is a very indefinite quantity. Benedict states that there is sugar present in the urine of one out of every 100 normal persons. Joslin claims that his method will detect quantities of 0.01 to 0.02 percent. Yet, the normal was believed to be 0.5 percent. Putting these data together it would seem that many of us ought to be diabetics. There is no definite agreement on the normal sugar content of the urine. But the sugar content of the blood is very definite indeed and if we are to give patients proper and intelligent treatment, we cannot be guided by the mere overflow of sugar in the urine; we require an accurate knowledge of that in the patient's blood.

Blood chemistry has been of much assistance in dealing with acidosis. Acidosis may be defined as a disturbance of the acid-basic equilibrium, by which the power to resist acids is lowered. It does not involve the actual reaction of any of the body fluids. The neutrality of the blood is preserved by a mixture of carbon-dioxide, carbonates and phosphates. Carbon-dioxide (an acid) and sarcolactic and paralactic acids are produced in the tissues in normal and diabetic and beta-hydroxybutyric acid in pathological metabolism. These are transported by means of alkali carbonates, phosphates, ammonia, and protein combination; the first two being the usual methods, and the others reserves in emergency. Elimination is through the lungs and kidneys, and lesions of these two organs are mainly concerned in retarding the elimination and in conjunction with increased acid production, in causing acidosis.

Heretofore our only clinical laboratory method of arriving at a diagnosis of acidosis has been by the determination of the ammonia coefficient of the urine. This is manifest only in severe conditions, and is only a very partial index, as the ammonia is only partially concerned in neutralizing acid. An increased ammonia coefficient means a high acidosis, but a lack of it gives us little defi-

nite information. Likewise, there are certain unmistakable clinical symptoms, such as dyspnea; but these appear only in severe acidosis, and milder grades pass unnoticed. Neither of these can be depended on as safe guides. Urinary acidity is a very poor index of acidosis, as the reaction of a urine depends on too many factors; it sometimes corresponds crudely to the degree of acidosis, and sometimes not at all.

The most accurate measure of acidosis is the hydrogen ion concentration of the blood, a physico-chemical quantity. Clinically, this point can be ascertained by dialyzing the blood against salt solution, adding an indicator, and comparing with a standard phosphate mixture of known hydrogen ion concentration (9). Van Slyke's method (13) of determining the CO₂ reserve capacity of the blood plasma, has been demonstrated clinically to be a very accurate guide in acidosis conditions. The normal plasma can combine with 65 or more percent of alveolar air. When this point falls below 50, acidosis is indicated. A method introduced by Friderica affords a rapid and convenient method of estimating acidosis clinically (14). The percentage of CO₂ in the alveolar air is the same as the tension of that gas in the blood, that is, the amount in simple solution in the plasma. This tension in the plasma depends on the equilibrium between the acids and bases therein contained, and will become less when excessive amounts of acid other than CO₂ are present. A subnormal percentage of CO₂ in alveolar air therefore indicates that acidosis exists. In a series of determinations, Walker and Frothingham (12) showed that the results of the two methods (Van Slyke and Friderica) correspond closely, and can be used interchangeably, with the exception that in diseases affecting the pulmonary epithelium, the results of alveolar CO₂ determinations are not dependable.

Blood chemistry is yet in its infancy. There is vast room for refinement and increase of accuracy. Yet, these few methods that have been so briefly sketched above, have meant an enormous stride ahead in our conception of certain diseases of metabolism. In individual cases, results of blood analysis have

overturned clinical diagnosis in the hands of experienced men, and are beginning to cause important changes in treatment. In surgery the routine blood analysis will soon take the place of the routine urinalysis, as it is infinitely more accurate as a guide to the two conditions which interest the surgeon—kidney condition, and acidosis. Instead of confining our inquiries into the chemical conditions of the body to certain very indirect and roundabout tests on substances that have been cast out of the body and are no longer in biochemical equilibrium, we are gradually obtaining more and more accurate and definite information from the blood itself, in which many of the chemical substances concerned in normal and diseased function are found in equilibrium, and in which many of the life and disease processes take place.

BIBLIOGRAPHY.

- (1) Myers and Fine, *Pathological Chemistry*.
- (2) Gradwohl, *Blood and Urine Examination*, in *Nephritis, Diabetes Mellitus, and Gout*, Medical Fortnightly and Laboratory News, Jan. 15, 1916.
- (3) Mosenthal and Lewis, *Comparative study of Tests for Renal Function*, J. A. M. A., Sept. 23, 1916, p 933.
- (4) McLean, *Clinical Determination of Renal Function by an Index of Urea Excretion*. J. A. M. A. Feb. 5, 1916, p 415.
- (5) R. L. I. Smith, *Renal Function in Nephritis*, J. A. M. A. Jan. 27, 1917.
- (6) Fine, *Relation of Gout to Nephritis*. J. A. M. A. June 24, 1916, p 2051.
- (7) Mosenthal, *Renal Function as measured by Elimination of Fluids, Salt, and Nitrogen*. *Archives of Internal Medicine*, Nov. 1915, p 733.
- (8) Christian, *Renal Test Meal*, *Am. Jour. Med. Sci.* 1916, cli. p 625.
- (9) *Chemistry of Blood and Urine*, Gradwohl and Blaivas, C. V. Mosby & Co.
- (10) *Nitrogen of the Blood and Urine by Direct Nesslerization*, Pearse, *Jour. Lab. and Clin. Med.* Nov. 1916, p 131.
- (11) Benedict, *Method for Glucose in the Blood*, *Journal Biol. Chem.*, Jan. 1915.
- (12) Walker and Frothingham, *Arch. Int. Med.* Sept., 1916.
- Tileston and Comfort, *Urea and Non-protein Nitrogen of the Blood in Nephritis*, *Arch. Int. Med.*, Nov. 1914, p 620.
- Myers, Fine, and Lough, *Significance of Uric Acid, Urea, and Creatinin of the Blood in Nephritis*. *Arch. Int. Med.*, 1916, p 570.

A Study of Intrathoracic Lymph Adenitis in Children, With Special Reference to the Signs and X-ray Findings.

W. O. Colburn, M. D., Lincoln.

A very brief consideration of the anatomical relationship of the lymphatic system within the thorax is necessary to remind us of the knowledge which we once worked so hard to obtain but have long since forgotten. The bronchial lymph nodes comprise those lymphatic glands in the thorax which receive the lymph stream from the lungs and the bronchial system. These nodes are closely connected with other lymphatic glands of the thorax and neck, viz:

(a) the tracheo-bronchial lymph nodes situated at the bifurcation of the trachea one of which is situated in the angle formed by the separation of the main bronchi,

(b) the bronchial lymph nodes along the main bronchi,

(c) the pulmonary lymph nodes at the hilus of the lungs, and still other lymph nodes to be considered, all of which bear names that are suggestive of their various locations are,

(d) the anterior mediastinal, twelve in number,

(e) the posterior mediastinal, and external to the thorax,

(f) the tracheal and oesophageal,

(g) the jugular,

(h) the supraclavicular

(i) the superficial cervical and

(j) the submaxillary glands.

All these nodes communicate directly or indirectly not only among each other, but also with the true bronchial nodes, so that disease of one set may be transmitted to another.

The following conditions may give rise to enlarged glands within the thorax.

First and foremost, tuberculosis is responsible for most of the cases of bronchial gland changes.

Tuberculous meningitis occurs more often in the winter than summer months, and the

most plausible explanation of this seems to be that these patients carry a latent focus of tuberculosis somewhere in the respiratory tract, and that usually in the bronchial glands.

In acute broncho-pneumonia, the bronchial glands are swollen and red. The usual size is that of a pea or bean, but in protracted cases and after repeated attacks, they may reach two or three times the size mentioned.

In acute endocarditis, we frequently find demonstrable signs of enlarged bronchial glands. A case recently reported showing a positive D'Espine sign and a negative Von Pirquet, at post mortem revealed no tubercular focus, but enlarged glands due to an acute endocarditis.

In asthma of children, we should think of enlarged bronchial glands as a causative factor of the disease.

Hoarseness coming on gradually, but well marked when first seen means pressure on the laryngeal nerves, and may be due to enlarged mediastinal glands.

In status lymphaticus we often find general glandular enlargement, and the lymph nodes of the tracheo bronchial region are greatly enlarged often to the size of small cherries.

We must think also of syphilis, Hodgkins disease, and malignant disease as possible factors in mediastinal adenopathy.

Signs.

D'Espine's Signs: Prof. Adolphe D'Espine of Geneva in an article on "The Early Diagnosis of Tuberculosis of the Bronchial Glands in Children," states that the whispered voice in children normally ceases at the level of the 7th cervical spine posteriorly, and when there is enlargement of the lymph nodes and the patient whispers three—three—three, bronchophony is heard over the upper thoracic spine as well. The seventh cervical spine also marks the point of bifurcation of the trachea in infants and children under three years of age.

This point sinks lower and lower with advancing age until at the age of eight years it is on a level with the third dorsal spine

and at twelve years as low as the fourth dorsal spine. The sign is best elicited when the arms are folded well across the chest, the head sharply flexed and the patient sitting erect. Firm pressure should be made with the stethoscope as the patient repeats three—three—three. When the sign is positive the final “e” of the last word persists for a moment like an echo after the phonation ceases. This post phonal quality is the significant feature. The word “tree” may also be used. Occasionally the spoken voice or a cough is better than a whisper.

D’Espine believed the sign to be a manifestation of tuberculosis of the bronchial lymph glands, but we are forced to conclude that such physical findings mean merely that there is some tissue between the trachea and bronchi and the vertebral column which transmits the bronchial sound unchanged. This tissue is usually tracheo bronchial lymph nodes.

Many distinguished men of the profession admit the sign to be a very useful one in determining the enlargement of the tracheo bronchial lymph nodes. Holt states that the sign is more marked upon the right than the left sides.

Gesteira of Rio Janeiro says that in Brazil, D’Espine’s sign is regarded as the most reliable and easiest method to apply for revealing the presence of the tuberculous processes in the tracheo bronchial lymph nodes.

The D’Espine method is used in the investigation of the hilum region by listening for the whispered voice in the interscapular region. When positive it is indicative of a pathological process at the hilum, and may be due to enlarged glands the result of malignancy, leukemia, Hodgkins disease, syphilis, or any infectious disease of the lungs.

Eustace Smith Sign: In the examination of the chest our attention is first struck by the dilatation of the superficial veins usually associated with marked enlargement of the mediaastinal glands, a further evidence of this enlargement is Smith’s sign, which consists of a systolic murmur produced at the right border of the Manubrium when the head is thrown back.

X-Ray Findings.

Jordan of Guys Hospital ignores all physical signs, and says that the only method of making a diagnosis of peribronchial phthisis is the Roentgen method. Radiography holds the field alone.

Another writer says it is just as hard for the roentgenologist to diagnose tuberculosis in children as for the one who bases his diagnosis on physical signs. There might be a small focus in a bronchial gland which the X-ray did not readily show. It is difficult to determine the presence of a small focus, as the shadow of the cross section of a bronchus might be mistaken for an enlarged gland. It is advisable to have stereoscopic radiographs not only in one plane but at different angles.

Dunn of Boston, made Roentgen ray examinations of the chest in thirteen cases and was positive in every case, finding enlargement of the bronchial lymph nodes in each.

In a recent paper, R. M. Smith of Boston, and C. D. Sweet of Fresno California, report one hundred cases, twenty of which showed dulness with or without a change in breathing at the lung root, and in every instance, except two cases in which the sign was not recorded, the D’Espine’s sign was positive. The Roentgen ray revealed bronchial glands or thickening of the lung roots.

Seventy out of one hundred gave a positive D’Espine’s sign down to or below the second dorsal vertebra. Of these sixty-five or 92.8% had positive roentgenograms, three had negative roentgenograms and in two no plates were taken.

Two of the cases in which roentgenoscopy was negative showed D’Espine’s sign, one to the fifth, the other to the second dorsal. There is no explanation for these discrepancies, but it would seem except in rare instances that a positive D’Espine’s sign means enlarged bronchial glands.

In sixteen cases the Roentgenogram was the only evidence of enlarged bronchial glands and the plate showed a marked enlargement. Presumably, glands were so situated as to cause no pressure and thus escaped detection.

Case Reports.

Case 1. Ralph K., age four years has had enlarged suppurating cervical glands. The child has undergone several operations for the cure of this tuberculous adenitis, having had his first operation in April, 1913, and his last operation in January, 1915. The neck has remained healed since, and the child has gained remarkably in weight and looks to be in perfect health at the present time. The D'Espine sign is positive down to the sixth or possibly the seventh dorsal spine.

The X-ray shows the glands to be enlarged as low as the tenth dorsal spine, but upon examination of the plate one will note the enlargement is most prominent at the seventh dorsal spine.

Case II. The following case data was given to me by Dr. K. S. J. Hohlen and is interesting in connection with this paper. Adam Z., age six. Six months prior to operation the child had his tonsils removed because of enlarged cervical glands on left side of neck. It was believed that the adenitis was due to tonsillar infection. January 26th, 1915, the superficial and deep cervical glands of the left side were removed, there being no enlargement of the right side. A pathological examination of the removed glands showed lympho-sarcoma.

The Roentgen ray examination showed marked enlargement of the mediastinal glands. Patient was relieved of shortness of breath for a while following the operation. Six months later a letter stated the child died from tuberculosis of the lungs. The patient probably died from lympho-sarcoma.

Management of Corneal Injuries.

Frederick F. Teal, M. D., Lincoln.

The safety of an injured eye hinges many times on a few properly directed measures, and even slight injuries assume an importance that may not be properly appreciated by the majority of physicians. We can all recall instances of the sight and even the eyes being lost from trivial injuries. Foreign bodies on the cornea constitute the majority of corneal injuries. These are commonly occupational affairs, and comprise cinders, particles of emery and metals, sand, dust, sawdust, splinters of wood, seeds, etc. Particles of glass from broken spectacles are not uncommon.

In shops and factories there is usually a workman who is rather adept at removing foreign bodies; in some cases he is apt to attempt too much, the result being a large denuded area of corneal surface. He should confine his efforts to a cotton wound tooth-

pick, lightly brushing the cornea in those cases where the foreign body rests on the surface. This is the procedure that should be resorted to first in all such injuries.

Where the foreign body is imbedded in the cornea it is necessary to lift it out. Cocaine two to four per cent is instilled into the eye followed by fluorescein which stains any corneal injury a green color, after washing away the excess with boric or normal salt solution. A good light either from a window or electric light if obtainable, is necessary. A condensing lens is an additional help that will bring into good view almost any foreign particle. We use in our office the Wolff condenser which can be attached to the ordinary oculist's lamp and which when swung at the end of an arm relieves one of the necessity of an assistant when necessary to have extra good illumination. Spuds for lifting out the particles are of various sizes and shapes. Personally I prefer a sharp one, as they can be more easily lifted out and there is less damage to the surrounding corneal epithelium.

Foreign bodies that are hot, such as cinders, emery and particles of steel, have underneath them a small stain or eschar. It is our custom to remove this also, as we find the cornea heals more quickly. It may be necessary to scrape this away. If it is too deep in the cornea to remove it without considerable injury, especially if within the pupillary area we leave it for twenty-four or forty-eight hours, when it will be found to have loosened considerably and comes away easily. The eye is then douched with boric or normal salt solution after looking under the lids for other foreign bodies. It is good practice to explore the other eye also. A resulting scar over the pupil due to overzealous efforts to remove the foreign body, might seriously interfere with the sight. The magnet can be used for steel or iron. Iron particles leave a rust stain which it is also advisable to curet out.

Some oculists cauterize the resulting wound, carbolic acid or iodine being commonly used. Our routine dressing is first cauterizing or disinfecting the wound followed by petrolatum or yellow oxide of mercury, (atro-

pine if much reaction is expected) and a light bandage. It has been found that the epithelium forms more readily when the eye is covered. If conjunctivitis is present, nitrate of silver or argyrol in solution or ointment may be used. It may be advisable to prescribe an unguent for home use twice a day. In such cases I use yellow oxide of mercury or argyrol. Under this method of treatment, taking about two hundred fifty foreign body cases during the last year, we have had no unsatisfactory results.

In addition to injuries from foreign bodies in the eye, we frequently see non-perforating wounds of the cornea from flying objects, such as twigs or branches of trees or scratches from finger-nails. I recall an injury contracted in the efforts of a woman to catch a chicken. The chicken in flying, scratched the cornea, an ulcer resulted and the sight of the eye was lost. Milkers are frequently struck in the eye by the tail of a cow. Bugs and even bees cause bad injuries. Caterpillars as a cause of injury have assumed such importance that a certain form of conjunctivitis has been named accordingly, caterpillar conjunctivitis. The cornea may be injured by the fine hairs, and they are extremely difficult injuries to deal with. Eyes injured in any of the above mentioned ways, should be cocainized, fluorescein introduced, any foreign material removed, and then treated as outlined in the management of foreign body injuries. It is my custom if there is considerable reaction at the time of removal and treatment to apply heat in the office. A wet compress is placed over the eye before it is dressed, several layers of black cloth over this and an electric light bulb held in contact with the dressing for fifteen to thirty minutes. The same method can be used at home by the patient, without requiring a removal of the dressing. It is an ideal method of applying heat to the eye as it is not heavy and the supply is constant; it is much superior to the use of hot water, salt bags and the other older methods of applying and maintaining heat. In corneal breaks a water bag is too heavy and might be the means of causing a rupture of the eyeball.

Lime burns are quite common and may result seriously, as also burns from other agents such as acids, alkalies, hot water, cigar ashes, hot fat, molten metal, curling irons, etc. Any foreign substance present should be washed out with boric or normal salt solution, every particle being removed. If the burn extends into the deeper layers of the cornea a bad ulcer results. For the first dressing we proceed as in any corneal injury. In the more serious cases we use atropine alkaloid in castor oil eight grains to the ounce. The alkaloid is used as it dissolves more readily in oil. It may be advisable to use an ointment as often as every two hours—this may be of boric acid, argyrol, yellow oxide or bichloride of mercury 1.5000. The burned necrotic portions are thrown off gradually and the resulting healed portion remains irritable for a long time.

In perforating wounds of the eye we have a condition that is a source of anxiety to the oculist. They may be compared to the abdominal wounds which the general surgeon is called on to treat. The wound may be infected or not. The importance of the first handling of these cases can not be over-estimated. We must first determine whether the wound is a perforating one. A history of the injury or the character of the instrument will sometimes decide. Examine for shallow anterior chamber, hemorrhage into anterior chamber, escape of aqueous fluid (spoken of by the patient), lowered tension, distortion or prolapse of iris, and condition of lens, which may have become cataractous. The margins of the wound soon become swollen and grey from contact with the aqueous. Sometimes foreign bodies may be seen protruding from the wound, lying in the anterior chamber or imbedded in the iris. It may be possible to locate the foreign body in the vitreous by means of the ophthalmoscope, transillumination or X-ray. If the general practitioner will pardon me I will throw out a few suggestions as to first aid management of such cases.

Get a good history of the injury as it may be of service in a future damage case. Always take the vision (both eyes). There

(Continued on page 239)

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Dr. A. F. Tyler.

With this issue of the Journal Dr. A. F. Tyler of Omaha becomes Associate Editor. The Journal welcomes Dr. Tyler's assistance and cooperation. His wide acquaintance and splendid training render him preeminently qualified for the position which he willingly assumes.

Slip Away From the Grind.

The value gained by a physician visiting other members of his profession or visiting medical societies is overlooked by a large percentage of the medical profession. To gain the viewpoint of a fellow practitioner, to see his method of handling patients, to learn his experience in the treatment of disease is broadening and can not but help make a broader, better man of anyone taking time to visit the men of nearby towns. The fellowship gained by these little visits is sufficient to more than repay one for the loss of time away from work. Besides this, many friendships started in this manner continue through life casting a spirit of professional comradeship over what would, in many cases, be a life of mere drudgery.

Nurses' Registration Law Threatened.

The legislature of 1915 enacted a fair and sane nurses' registration law. Under this law the nurses' registration board has been organized and has conducted the examinations for the registration of trained nurses for the two years just closing. One of the provisions of this law requires that an accredited hospital shall have at least a capacity of twenty beds and at least an average of ten patients daily. It would seem impractical to reduce this hospital requirement. It may be granted that an ideal training school could be conducted by a one-bed hospital according to the adage of Mark Hopkins and a University, but in practice this condition rarely obtains. The American Medical Association has wisely set a minimum requirement in equipment, instructors, etc., for a class A medical school and it would seem only reasonable that a minimum requirement in equipment and number of beds, which means variety of cases, should be laid down for the training of nurses. To permit a hospital of any capacity, say ten beds, with a daily average of five patients to graduate nurses would be to place a premium upon the lack of training and experience rather than the fullness thereof. With those who seek to raise the requirements for licensure of all persons dealing with human life, the medical profession must stand shoulder to shoulder in generous support. The nursing requirement is probably sufficiently high for the present time, but the time will surely come when high school graduates only will enter a profession which so vitally concerns humanity.

House Roll No. 695 should therefore be protested against vigorously as inimical to the interests of the present nursing law and calculated to alter the present reasonable standard.

Gynecologists are not yet fully agreed as to the best method of handling ruptured ectopic pregnancy. With a patient in shock and a bleeding vessel, forty or fifty per cent of the cases operated succumb. To defer the operation until shock has in a measure passed away, say from ten to eighteen days after the rupture, has proven in many cases to be the safer procedure. This long delay,

however, awaiting the passing of shock does not seem necessary. By means of small doses of morphine hypodermically and salt solution in small amounts the pulse rate may be slowed and a few hours after the signs of shock diminish a laparotomy may be done with evacuation of the blood and the removal of the affected tube. Blood transfusion according to Richardson of Hopkins is of great assistance.

House Roll 124.

The medical committees of the House and the Senate held a public hearing in Lincoln, February 7th, on the merits of House Roll No. 124 known as the Fox bill. About sixty physicians were present and the arguments for and against the bill presented. The legislative committee of the State Medical Association had the matter in charge. A large number of physicians clearly portrayed the deplorable condition existing at present in Nebraska public health affairs and made vigorous pleas for a scientific state health organization as outlined in House Roll No. 124. The arguments against the bill were presented by Dr. Wilmeth of Lincoln, Dean of the Lincoln Medical College; and Dr. H. B. Cummins of Seward, a member of the present State Board of Secretaries. The main contention of the opponents of the bill was that the power of appointment rests solely with the Board of Health proper, i. e., the governor, the attorney general and the superintendent of public instruction. It was shown by the friends of the bill that the Board of Secretaries can act only in an advisory capacity and that the power of appointment must, according to the statute, rest with the Board of Health proper.

STATE SECRETARY'S COLUMN.

Readers of our Journal should note the ads in this issue and tell their neighbors of them. Note the Lincoln Hotel, Hardy Furniture Company and Kostka Drug Co. of Lincoln; the Riggs Optical Co., Mrs. D. A. Hill, Corset Specialist, and Guarantee Fund Life Association of Omaha; the Quaker Oats Co.; Battle Creek Sanitarium, and Lea and Febiger; all new ads for 1917. Patronize our advertisers.

Doctor, if you have not paid your county and State Medical Association dues for 1917, our official Journal may fail to arrive at your desk in April.

On March 15, 1913, W. T. Upton, E. F. Andrews and L. H. Staples were jointly indicted for a conspiracy to use the U. S. mails for a scheme to defraud. Lost manhood cases. On January 24, 1917, they appeared in the Federal Court at Omaha and entered a plea of guilty and each was sentenced to pay a fine of \$350.00. Fines paid.

This is the Federal Court record, Jan. 24, 1917, after four years efforts to restrain the United Doctors from operating their quack game in Omaha, and surrounding country.

Joseph M. Aikin, Secy.

SOCIETY NOTES.

The Elkhorn Valley Medical Society.

The Elkhorn Valley Medical Society held its mid-winter meeting at Fremont, Neb., on Jan. 30, 1917. There were present a number of interesting papers which were well received and followed by good discussions. A splendid noon day lunch was served at the Terry Hotel.

The hearty indorsement and support of the society was voted for the House Roll No. 124 and Senate File No. 60 which included the recommendations made by Dr. Fox when last year he made a survey of the state.

It was decided to have the mid-summer meeting take up the "Cancer Question." Members were urged to send the titles of papers to the secretary. The summer meeting will be held at Norfolk, Neb. The society was entertained by the Dodge County Medical Society.

About fifty physicians were in attendance and by old members it was considered the best meeting held in years.

The following officers were elected:

Dr. S. A. Preston, Fremont, President.
 Dr. H. R. Carson, Norfolk, Vice President.
 Dr. J. D. Reid, Pilger, Vice President.
 Dr. A. P. Overgaard, Omaha, reelected Secretary.
 Dr. G. W. Bartlett, Scribner, reelected Treasurer.

Pierce County Society.

At the annual meeting of the Pierce County Medical Association held at Plainview Dr. John Mayer was elected president for the ensuing year. Dr. Craft of Foster was chosen secretary.

Cass County Society.

The Cass county medical society held its annual meeting at Weeping Water. The following officers were elected: President, Dr. F. P. Reed, Weeping Water; vice president, Dr. M. U. Thomas, Weeping Water; secretary-treasurer, Dr. O. E. Liston, Elmwood; censor, Dr. F. W. Kruse, Weeping Water; delegate to state society, Dr. Talbot, Greenwood.

Madison County Society.

At the regular monthly meeting of the Madison County Medical Society held at Madison, Newman Grove was named as the next meeting place of the organization.

Eleven doctors from the different parts of the county were present. The meeting was held at the new Horst hotel.

After an elaborate dinner the regular routine work was taken up. The scientific part of the program was devoted mostly to discussing pneumonia. Previous gathering of the association were held at Norfolk but at a meeting recently it was ruled that the meetings in the future go to different towns in the county.

The following are the present officers of the society: Dr. Gadbois, Madison, president; Dr. Frink, Newman Grove, vice president; Dr. Brush, Norfolk, secretary.

Dodge County Medical Society.

R. C. Byers, Nickerson, President.
G. H. Rathburn, Fremont, Vice President.
S. A. Preston, Fremont, Secy.-Treas.
P. R. Howard, North Bend, Delegate.

Pediatric Society.

The Nebraska-Iowa Pediatric Society meets once each month at Hotel Loyal, Omaha. The following papers will be presented during the coming months:

Tuesday, Feb. 20th—"Acquired Syphilis As Related to Children."—J. W. Hellwig. Discussion opened by B. W. Christie.

Tuesday, March 20th—"X-ray Manifestations of Syphilis Particularly of Bones."—A. F. Tyler. Discussion opened by A. P. Overgaard. Clinical cases showing different manifestations of Syphilis.

Tuesday, April 17th—Review of Late Literature on Syphilis—J. C. Iwerson. Discussion opened by Floyd Clarke.

Tuesday, May 15th—General Review—H. M. McClanahan. Discussion opened by Mary Tingley.

H. M. McClanahan, President.
Clyde Moore, Vice Pres., Chairman of Program Committee.
Newell Jones, Sec.-Treas.

NEBRASKA NOTES.

Dr. H. Z. Dean of Spokane, Washington, has located at Scottsbluff.

The Commercial Club of Norfolk is considering a new hospital for that city.

Dr. Paul E. Koerber of Yutan is leaving Yutan. His practice will be taken by Dr. C. G. Zimmerer.

Dr. W. S. Wiggins of Exeter has removed to University Place where he will be connected with the Wesleyan hospital.

A hospital campaign is on at Spencer and the citizens of the community are raising the sum of \$5,000 by popular subscription.

Dr. O. D. Johnson of Gothenburg has removed to Brady where he will assume the practice of Dr. E. W. Fetter. Dr. Fetter has recently located at North Platte.

The Coolidge Hospital at Palmer is practically complete. The equipment will be up-to-date and everything has been done to make it a useful institution for Palmer and vicinity.

Dr. J. P. Lord of Omaha who was offered service in the British Hospital Unit has been denied passports from the United States Department of State because he is enrolled in the Medical Reserve Corps.

Among the Omaha physicians who attended the meeting of the Sioux Valley Medical Society at Sioux City January 23rd and 24th were Newell Jones, John P. Lord, A. L. Dermody and Louis Bushman.

Professor F. W. Heagey of Creighton Medical College read a paper before the same Association at the December meeting in New York on "The Relation of the Ganglionic Crest to the Mesectoderm in the Chick."

Professor S. Morgulis of Creighton Medical College read a paper during the Christmas holidays before the American Society of Physiologists at the New York meeting, his subject being "Hydrolytic Products of Chitin."

Charles W. Gray, a Lincoln man, plead guilty to a charge of practicing medicine without a license and was fined \$50 and costs. The complaints against Gray was brought by Dr. E. Arthur Carr, secretary of the state board of health.

The Loup Valley Medical Society recently organized, held a meeting at St. Paul, January 23rd. In spite of the inclement weather thirteen men were present including Dr. Arasmith of Palmer, Dr. Hart of Elba, Dr. Raynor of Cushing, Dr. Grothan and Dr. Bates of St. Paul. Dr. Sachs, Dr. Tyler and Dr. McCarthy of Omaha furnished the program, the subject under discussion being "Focal Infection."

The Anatomical Record for December contains an article by Professor Eben J. Carey of the Creighton Medical College on "The Anatomy, with Especial Consideration of the Embryological Significance of the Structures of a Full-Term Fetus Amorphus." Professor Carey also read a paper before the Association of American Anatomists in New York on

December 29th and 30th upon "The Unequal Growth and Degeneration in the Early Ossification Centers in the Diaphyses of Pig's Femora."

The annual Conference of Health Officers will be held at the Lincoln Hotel, Lincoln, February 21st and 22d. This conference is under the auspices of the State Board of Secretaries and the program will consist largely of discussions on public health matters. Last year at the meeting held in Omaha the attendance was small, but the program this year is such as will undoubtedly bring out a large and enthusiastic gathering. All physicians in the state interested in public health matters are invited.

The bill introduced in the legislature by Dr. George Reneker of Falls City to reduce the requirement of study and training for registered nurses has been vigorously opposed by Dr. Hoffmeister, chairman of the Medical Committee of the House, and by registered nurses and doctors over the state. The present requirements in Nebraska are one year of high school at least, and three years' training in an accredited hospital. The proposed bill is for six months' training and two and one-half years' experience. The bill failed to pass the medical committee of the House and will probably not be revived.

Dr. W. L. Dayton of Lincoln was honor guest at a banquet given at the Blackstone hotel, Omaha, Wednesday night by the oculists and aurists of Nebraska. Dr. Dayton has recently been elected president of the American Academy of Ophthalmology and Oto-Laryngology. Those present were: Doctors and Mesdames Fred Teal, Lincoln; J. B. Potts, Omaha; J. M. Banister, Omaha; W. P. Wherry, Omaha; A. R. Knode, Omaha; W. F. Callfas, Omaha; W. L. Curtiss, Fairbury; R. C. Person, Omaha; J. M. Pattor, Omaha; F. W. Dean, Council Bluffs; Clarence Rubendahl, Omaha; C. T. Uren, Omaha; H. B. Lemere, Omaha; Louis Bushman, Omaha; Doctors Zemar, Lincoln; J. P. Williams, Lincoln; C. H. Campbell, Columbus; F. S. Owen, Omaha; H. L. Arnold, Omaha; E. C. Hayman, Lincoln; J. J. Hompes, Lincoln.

Management of Corneal Injuries.

(Continued from page 235)

seems to be a certain amount of timidity in the matter of the first aid treatment of injured eyes, patients frequently coming to the office with serious injury to an eye which has not even been bandaged. It might perhaps be expecting too much to excise protruding iris or vitreous. Asepsis and anti-sepsis are as important as in abdominal or other injuries as far as the safety of the globe is concerned. Wash the surrounding skin with soap, water and benzine. The eye can then be washed out with boric acid solution, atropine grains four to the ounce in-

stilled, vaseline or a mild unguent introduced and a snug bandage applied. Such treatment may save an injured eye from blindness or total loss. By all means avoid poultices of any kind. When the patient reaches the office of the oculist and he has completed his examination, the proper treatment is applied.

The scope of this article does not warrant me in going into the methods of handling the various kinds of injuries to the inner structures of the eye. These may involve iris, ciliary body, lens, vitreous, retina, choroid, etc. Protruding parts must be replaced or excised. Foreign bodies and particles removed from the wound and inside of the eye by douche, magnet, instrumentation, etc. Escaping lens matter favors infection and usually must be removed. It is advisable to make slides and cultures from the wound, later using a serum for immunization. Cauterize the edges of the wound, and if extensive, suture the edges of the cornea. The latter should include only the upper layers. The use of conjunctival flaps as advocated by Kuhnt insures an ideal method of healing of extensive corneal wounds. Finally the usual treatment of irrigation and atropine are indicated. Dionin and sub-conjunctival injections of normal salt or mercury complete a treatment that insures the greatest degree of hope for a favorable outcome of injuries of a most necessary organ. An unguent is then placed in the conjunctival sac and a firm bandage applied. The unguent is used at varying intervals throughout the day. Subsequent use of atropine, dionin, sub-conjunctival injections and heat are used as indicated.

The Value of Roentgenography in Focal Infections About the Teeth.

C. H. Ballard, M. D., Omaha.

The value of Roentgenography in infections of oral origin is now recognized even by those who were skeptical in the past. Literature abounds with good articles on the topic that physicians desiring to keep abreast with the times may read. General practitioners are, I believe, inclined to be somewhat negligent in the examination of the mouth for focal infection and too prone to treat

symptoms only. An examination of the buccal cavity should be made in every disease in which there is the least suspicion that sepsis about the teeth might be a causal factor.

RESUME OF DISEASES DUE TO ORAL INFECTION.

The list of diseases due to focal infections about the mouth is steadily increasing and one now wonders why more attention was not given the subject in the past. Rheumatism, neuralgia, peri-myocarditis and endocarditis, nephritis, gastric and duodenal ulcer, arthritis deformans, appendicitis, sciatica, and arteriosclerosis are the more prominent maladies laid at the door of apical abscess and pyorrhoea alveolaris by various writers.

While the death rate from these diseases may not surpass that of cancer or tuberculosis, the amount of suffering is far greater. Such a formidable array of ills produced by absorption from the accessible peri-apical pocket should indeed command the respect and attention of both dentist and clinician.

BACTERIA AND ABSORPTION OF TOXINS.

It is said that nine out of every ten individuals are carrying menacing incubating focuses from which a dangerous amount of toxins are continually absorbed. The peri-apical abscess may be likened to a small retort constantly brewing a poison that is deleterious in many ways to the entire system; nor is it necessary that any local symptoms arise as it has been clearly proven that blind abscess may exist indefinitely without the patient's knowledge. In these root-end pockets, the streptococcus viridans is commonly found in pure cultures. Streptococcus hemolyticus, albus, and arueus, as well as endamoeba buccalis, gingivalis, and numerous other bacteria have been isolated.

Dr. W. S. Hewitt, in a recently published article, states that without question the alveolar process, with the exception of the intestines, is the largest and most frequently diseased part of the body from which toxins are liable to be absorbed. A very small amount of toxins absorbed from the alveolar process will do more harm than a great amount absorbed from the intestines, for the liver converts those substances which would

do harm into bodies which cannot be absorbed. As there is no liver to protect absorption from the alveolar process, these toxins are carried directly into the circulation and are eventually thrown out by the kidney and other eliminating organs frequently to their detriment.

Individual immunity and idiosyncrasy must also be considered. Immunity may be broken down by wasting diseases, nervous strain, or overwork. The virulence of the organism present is of more significance than the size of the lesion, as a small focus may produce a severe endocarditis eventually ending in death.

Rosenow holds the belief that the streptococcus viridans commonly found in mouth infections has a special predilection for the heart and joints. The intravenous injection of streptococci of the proper grade of virulence may be followed by ulcer of the stomach or duodenum, due to localized infection and secondary digestion; and the affinity of this organism for the stomach is so great that a general infection may not occur. Certain strains of streptococci producing arthritis often simultaneously produce endo-periocarditis, and when modified by cultural methods may show a preference for muscles, including the myocardium and the kidneys.

The most common organism found in septic foci of the mouth is streptococcus viridans, which takes on characteristics of the streptococcus hemolyticus when obtained from a deep abscess or from a region containing but little oxygen, as in apical abscess.

METHODS OF TREATMENT.

One of the first steps in the cure of root-abscess is the removal of the gangrenous pulp, the sterilization of the root-canal, and the proper filling with a material of sufficient density to cast a shadow in the roentgenogram. Gutta percha is commonly used and is considered by many the best. The filling should extend flush with the apex of the root and if it goes a little beyond, no harm will be done.

The portion of the root extending into the peri-apical pocket should be amputated

through the alveolar process, the bone curetted, the cavity packed with gauze and allowed to heal from the bottom. New bone or at least new tissue closely resembling the alveolar structure fills in until the pocket is closed. The Zinc-ionization method has been used with good success in treating these foci. Succinamide of mercury used hypodermically is much lauded by men of large experience in the treatment of pyorrhoea.

The results of autogenous vaccine treatment in this field have not been fully worked out, some authorities condemning and others claiming success with its use.

VALUE TO THE PHYSICIAN.

It is the general practitioner that attends the great majority of cases primarily and he must be alert in his search for focal infections. The teeth and tonsils are held accountable for the largest number of foci-diseases and one should be ever suspicious of them in any of the diseases previously mentioned. They must bear the burden of the suspect and until proven healthful should be considered a primal cause.

The Roentgen ray must be depended upon chiefly for the discovery of hidden lesions about the teeth. Apical abscess, pyorrhoea, unerupted, impacted and improperly filled teeth are clearly shown in well taken Roentgenograms.

Daland, quoting Ulrich and Leonard, states that one thousand Roentgenograms taken at random indicate that seventy per cent of artificially filled roots of teeth were abscessed; and Leonard corroborated this statement by examining one hundred cases, in which sixty per cent of the artificially filled teeth were abscessed.

Every infected tooth root is a menace to the patient's health. It is nothing short of marvelous to note the rapidity with which a case of chronic backache, rheumatism, neuralgia, sciatica, or endocarditis usually clears up after the discovery and proper treatment of an offending apical focus. The pain often disappears as if by magic and a rapid return to health takes place.

The value of the X-ray to both physician and dentist is apparent, for many cases can-

not be diagnosed without its aid. I would urge that conservatism be our motto and that we consider carefully the clinical evidence in each case.

The one thing most desired at this time in the nation-wide fight against focal infection is more and better team-work between physician, dentist, and Roentgenologist.

The Treatment of Malignant Conditions With the Roentgen Ray.

A. P. Overgaard, M. D., Omaha.

Let me give you the definition of deep Roentgen therapy or massive doses. By accurate measurement with pastilles, we have found what amount of Roentgen ray filtered through aluminum and sole leather, will produce an erythema of the skin in a given time. This is considered a massive dose or deep Roentgen therapy.

Up to the advent of the Coolidge Tube the Roentgenologists used small divided doses often repeated in the treatment of malignant diseases. The principal reason for this was that the X-ray tubes manufactured at that time would take but a small current and that only for a very short interval. Hence it was impossible to give large massive doses such as we are able to deliver today. We have now a standard tube that is constant and therefore one Roentgenologist is able to tell his colleague just what dose he is using to get the desired results. By this new method we can penetrate the tissues for six inches and by the cross fire method deliver a full erythema dose to the growth. This can all be accomplished in from one to three sittings after which the patient is given a vacation of from two to four weeks until the skin has rested from the intense radiations.

The Roentgen ray has opened up a new and practical method of treatment that can be carried out uniformly each and every time it is applied. This we are able to accomplish with the large doses that are accurately measured since the introduction of the Coolidge X-ray tube. When you stop to think that this tube was patented Dec. 30, 1913, you can get some idea of what an immense amount of change our mode of treatment has undergone.

In order to get the full therapeutic effect and fully protect your patient and yourself and assistants from a Coolidge tube it must be housed in a leaded glass container which is provided with an electric blower fan. The object of this fan is to keep the thin glass of the tube cool, as a full erythema dose will make the target of the tube red hot, and where these tubes were used without a cooling device the glass will become soft and thereby destroy the vacuum of the tube. The lead in the container is to protect the patient from the rays which emanate from the Coolidge tube. It has been demonstrated that these rays will fog a sensitive photographic plate in any part of a room where the tube is operating. Therefore, it becomes necessary to protect your patient from these rays so as to be exact in the dosage administered to the area to be treated. By so doing, you will see that a much larger and safer dose can be used and correspondingly better results will follow. Every dose of Roentgen ray used now is filtered through several millimeters of aluminum and sole leather. We find that this allows two or three times an erythema dose to be given without any danger of skin burn. In order to further insure no skin reaction from the Roentgen ray we apply a lotion to the part treated.

It is the accepted rule to follow operation of cancer of the breast with systematic deep Roentgen ray treatment. By this, I do not mean about eight or ten exposures at different times, but, a thorough and maximum dose of Roentgen ray applied over the entire chest under the axilla and to the back as well. A large number of cases have been found at the Mayo clinic with involvement of the mediastinum. Hence the necessity for a thorough raying of the entire chest.

By following operation of cancer of the breast with massive doses of Roentgen ray, I feel certain the entire area will be sterilized and any small foci which would later manifest themselves as recurrent nodules, can be destroyed before they have time to become active. In recurrent malignancy, the fear that large massive doses may produce a dermatitis should not stop us from pushing the ray to the full limit. We know that death rate from recurrent cases is 100% while

from dermatitis it is nil. Therefore, we aim to give each and every area all the ray it is possible to deliver with of course due regard to the skin.

My own method is to begin the X-ray as soon as possible after the patient has had her operation. The X-ray does not interfere with the healing of the parts. In fact, I have noticed in a couple of cases that it seems to aid in the healing process. It is my aim to divide the chest into areas to be treated separately. This extends from the head down to the lower ribs, and includes getting up under the axilla with as many doses as practical. Then, the upper part of the back is given a number of doses. This, we consider a complete series. When a series of this kind is finished the patient is given about two weeks vacation and the same procedure is gone through with again. This is repeated at the end of a month followed up a month later with another series. This, you will understand, gives each patient about four times an erythema dose under the use of heavy filters over the entire chest. Now, they are required to report at least every two months for a couple of years. If any sign of recurrence is manifested, they are given massive doses often repeated up to the point of producing a dermatitis.

In fibroids, we can accomplish much on account of the quantity of ray that can be used from different angles and concentrated on the fibroid. My rule is to divide the abdomen into at least eight areas, and the back into four. Then, every two weeks keep up the treatment, and right from the first series of treatments, the patient will report a change. It has been very gratifying to me, when cases return for a second or third series to find them report such wonderful improvement. They are relieved of their pressure symptoms right from the start. You can understand that after a mass begins to decrease in size, the patient must feel a great relief.

In cancer of the uterus, I believe the very best results can be accomplished with a combination of radium and deep Roentgen rays. After operation has removed the cancer, the radium should be applied to the cervix and this followed by a series of deep Roentgen rays over the abdomen and back with the site of the growth as the target to be rayed from different angles. This can certainly insure the entire pelvis being exposed to a dose large enough to be sure that no recurrence will take place. It is even good practice to give a series of rays before operation; the better to prepare the parts.

I am of the opinion that in dealing with cancer today, the safe rule is to have the surgeon remove the mass, then begin the deep Roentgen ray treatments as soon as possible, and carry this out for at least four to eight series of exposures. This has been found to give the most practical results.

In the treatment of leukemia, I ray only the long bones of the arms and limbs, then the chest both anterior and posterior. The guiding rule must be the blood count. If, after a few days treatment, the white corpuscles show a large drop, it is better to let the patient have a vacation for a couple of weeks. In order to build up the blood, much care, and attention must be given to every individual case. It has been proven that by the careful application of the Roentgen rays from two to six years have been added to a patient's life. Furthermore, he feels comfortable and is able to walk about. If the spleen does not show marked decrease in size after a series or two of rays I treat this organ with a massive dose. But this must be undertaken with a great deal of care as we have reports where improperly used, this has caused sudden death to the patient. In the Roentgen ray treatment of these blood conditions much skill and study must be given to the particular manifestations of each case in order to accomplish the desired relief to the patient.

In Hodgkin's disease, the glands are exposed, to full erythema dose, and this repeated as often as the skin will tolerate another exposure.

With increasing experience and improvements in technique, it may be safely assumed that the percentage of cases which receive benefit will increase. Earlier treatment, both surgical and by radiations, should lead to improvements in results.

The point that I insist upon is this, that there is no antagonism between the two methods of treatment; neither is specifically a cure, (treatment by radiations never has been, and in all probability never will become a specific cure for malignant diseases); but when surgical interference and radiation treatment, are employed in combination, we do possess means of combating malignancy

which renders the effort well worth making, all the more so because we treat with the conviction that we can do a great deal to help the patient himself to combat the disease.

No measure which holds out any prospect of success should be neglected in these desperate cases which so often call for treatment. The mere fact of trying helps the patient greatly, and may at times give him the necessary incentive to help himself. In our conflict with malignant disease, especially in desperate cases, everything counts, and no effort is wasted.

Deep Roentgen therapy is capable of producing quickly, painlessly, and safely, artificial menopause in hemorrhage, and various gynecological conditions.

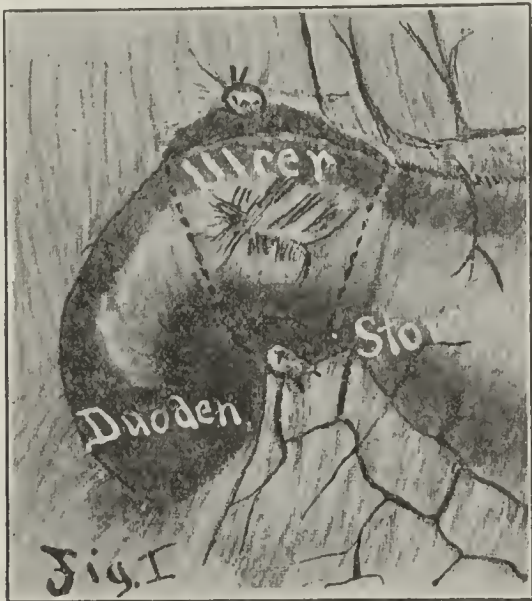
The prognosis of malignancy is not necessarily measured by the given extent, location, or character, of the disease. The most brilliant results sometimes follow treatment of the most apparently hopeless cases.

Resection of the Duodenopyloric Region for Extensive Ulceration.

Hugo W. Wightman, M. D., Omaha.

Frequently the surgeon observes a very extensive ulcerative process involving the entire circumference of the pyloric portion of the stomach. The pathological condition appears beyond the possibility of a restoration and often resembles the gross picture of a malignant process. The surgical technique for a successful issue in such cases requires experience in this particular kind of work. We all know that too many gastro-enterostomies exert no permanent beneficial influence on extensive ulcerative processes. The prime factor of a gastro-enterostomy in gastric or duodenal ulceration is not for the purpose of facilitating gastric drainage nor to diminish the emptying time of the stomach, but for the purpose of continuously alkalinizing the gastric contents by diverting the alkaline duodenal contents into the stomach. However, this alkalinization process will not heal an extensive chronic ulceration. From the study of a vast number of post operative cases in which a gastro-enterostomy was performed for an extensive ulcerated condition

of the stomach, we have been forced to admit that the ulcerative process was not benefitted. We perform a gastro-enterostomy in the average gastric or duodenal ulcer case and in the majority of cases also excise the ulcer. The final results are excellent and permanent. For extensive ulcerative processes involving the pyloric circumference and especially the duodeno-pyloric fornix we do a sleeve resection of the involved duodeno-pyloric zone,



(Fig. 1), and anastomose the cut end of the stomach with the remaining first portion of



the duodenum, (Fig. 2). The symptomatic cure so far has been excellent and the functional results apparently normal. Large segmental resections of the ulcer bearing area at the pyloric zone is not recommended for in several of our cases a marked motor de-

ficiency of the stomach followed, evidently a transverse or oblique resection of the pyloric muscles interferes with the pyloric motor wave.

Physicians Fees and the H. C. L.

The fee bill given below is in effect in Madison and Stanton counties and in contiguous territory. To what extent fees have been advanced throughout the state is not known, and the following is here published as a sample of the upward trend of prices medical as well as general.

MADISON COUNTY PHYSICIANS' FEE BILL.

With the general advance in the price of commodities the physicians' charges have not kept pace. Increased expenses and the great increase in the cost of all drugs and supplies have induced physicians in neighboring towns and elsewhere to revise the schedule of fees to conform to present day conditions, and physicians of Madison county guided by the same impulse and the desire to maintain uniformity in prices, on and after January 1, 1917, recognize the following as their standard:

1. Town visits in day time.....\$ 2.00
2. Town visits in night time..... 3.00
3. Country visits, day time, \$1 per mile for first 3 miles plus \$2, (and 50 cents per mile additional beyond 3 miles).
4. Country visits, night time, first 3 miles the regular day mileage and fee plus \$1, over 3 miles, day mileage and fee plus \$2.
5. Wayside calls in country, mileage and..... 2.00
6. Simple prescription and examination in office without urinalysis, plus cost of medicine 1.00
7. Urinalysis, chemical.....\$1.00 to \$2.00
8. Dressing in office not less than..... 1.00
9. Removing foreign body from ear, eye, nose or throat, from \$1.00 to \$2.00.
10. Normal labor in town..... 20.00 (Plus \$1 per hour after 6 hours).
11. Normal labor in country..... 20.00 (Plus mileage, plus \$1 per hour after 6 hours).
12. Instrumental delivery not less than..... 25.00 (Plus mileage in country).
13. General Anaesthetic, mileage and..... 10.00
14. Consultation, mileage and..... 10.00
15. Surgery. To be determined according to the degree of injury.

CASE REPORTS.

Selected Case Reports from the Clinic of the Nebraska Orthopedic Hospital. January, 1917.

H. Winnett Orr, M. D., Lincoln.

Case No. 4. G. H., age 3, was admitted to the hospital on July 3, 1915. He had an extreme right dorsal scoliosis with slight compensatory left curvature in both cervical and lumbar regions. The spine was not very rigid but the curvature was so severe that the spine could not be put in a corrected position. Dr. B. F. Richards of Crawford by whom the patient was referred stated that he was born in this condition. Doubtless, however, the deformity had been somewhat progressive and was more fixed.

This patient is presented after one and one-half years of treatment by the Abbott method especially to compare him with an almost identical patient treated here some years ago by the old suspension and lateral pressure plaster jacket method.

This former patient is still in the hospital and although very thoroughly treated by the old method for several years and more recently by the Abbott method has still a very pronounced deformity. His trunk is markedly asymmetrical and has never been otherwise—the spine is absolutely fixed and has been so for some years in bad position.

Our new patient's condition after 1½ years of Abbott jackets (five jackets), is so different as to be very striking. The spine can be made nearly straight. The trunk is almost symmetrical. There is no constriction of the chest and the patient is plump and well with good color and every evidence of the best of health.

In this case as in most of our scoliosis patients Abbott jackets have been applied with only moderate corrective force. Severe pressure with rapid over-correction of the deformity as advocated by Dr. Abbott has not been resorted to. This is for the double reason that there is an element of danger in the use of much force and that substantial improvement has been obtained in this and many other cases by the simpler method.

Case No. 5. This patient is presented as a striking illustration of what patience and conservative treatment will do for a child with a serious tuberculous lesion of the hip joint. He was admitted to the hospital August 25, 1914, at the age 3 years. He had been having trouble for a year, becoming steadily more lame—upon admission he walked with a severe limp. There was about 10 degrees of flexion deformity. He had pain with night cries and other typical symptoms of acute hip joint trouble. On Sept. 7 he was put to bed with weight and pulley extension applied in the direction of deformity. The line of traction was gradually lowered. On October 1 the extension had to be removed for a few days because the skin became irritated by the adhesive plaster. The extension was reapplied on October 8 and continued until January 4, 1915, at which time his first plaster spica was applied with the extremity practically straight. Six months later there was evi-

dence of an accumulation of fluid and the hip was aspirated. A small quantity of fluid was obtained. Since that time he has worn spicas continuously and has steadily improved. There is almost complete fixation of the hip at the present time with about 2 or 3 degrees of flexion. There are no acute symptoms, his general health is perfect and to all intents and purposes he is well.

We shall have him wear plaster spicas or a brace for some months or a year longer to provide against recurrence, and he will ultimately be absolutely secure against the danger of recurrence when complete bony ankylosis occurs.

It is important to emphasize the fact that ankylosis is the desirable outcome and not the re-establishment of motion as is some times thought. When motion remains after several years of trouble such as this patient has had it leads almost inevitably to a return of active trouble sooner or later.

Case No. 6. H. P. This patient is presented for two reasons. First because of the character and the great extent of her congenital deformity, and second because her condition illustrates the importance of doing as well as possible even in a bad situation. She was admitted to the hospital on Sept. 23, 1916, age 2 months. She presented double club feet with the feet in very bad equino varus position, double club hands with only partial motion of fingers and partial ankylosis of the knees, hips and elbows. X-ray shows minor skeletal defects only.

The appearance of the patient was quite extraordinary. At first a rather hopeless prognosis was given but it was decided to do what we could at least to improve the appearance of the child. With that in view frequent anesthetics with forcible correction and applications of plaster have been done. This was done on September 25, September 28, October 19, October 23, November 30 and the patient now returns on January 11 for examination and further treatment.

The procedures have consisted solely of forcible stretchings and the application of plaster paris. The stiff joints have been freely manipulated and the crooked feet are now almost straight. The patients appearance is on the whole already so much improved that the parents are not only willing but anxious to persevere indefinitely to secure all the improvement possible. Just how far such a patient may ultimately be improved we are hardly prepared to say but the gratification of the parents now is certainly sufficient reward for the amount of effort expended up to the present time.

Tuberculosis of Spine.*

James E. M. Thomson, M. D., Lincoln.

History. B. F. T., male, American, age 53. Occupation, miner. Admitted July 15, 1916.

Present complaint:

1. Intense pain in back, continuous, exaggerated by upright position and walking, relieved by sitting with elbows on knees, supporting chin on hands, or by lying on abdomen.
2. Stiffness of legs and difficulty in walking.
3. Loss of weight, over 50 lbs. in 5 months. Original weight 225 to 230 lbs. Present weight 175 lbs.
4. Weakness gradually becoming greater.
5. Night sweats, a regular occurrence.
6. Has afternoon temperature of between 100.5° F. and 101.8° F.

Onset and course.

At 8 years of age patient fell from swing on back, suffered pain in back continuously but not of severe nature except when he went to stool or stooped over. He noticed slight deformity of spine one year after accident. Suffered above symptoms for about three years with gradual decrease in severity. Jan. 8, 1916, had attack of la grippe which lasted about 3 weeks and it was then that he noticed more deformity of spine and onset of the above enumerated symptoms from which he now suffers.

Past History:

Had pneumonia 20 years ago. No other diseases. Denies venereal infections.

Physical Examination (positive findings only):

1. Evidence of loss of weight.
2. Kyphosis marked in lower dorsal region.
3. Ridgid spine, with pain on even slight manipulation.
4. Palpable axillary glands.
5. Area of dullness in region of apex of right middle lobe.
6. Lower extremities: Stiffness general. Platellar reflex and ankle clonus markedly increased, equally on both sides.

Roentgen examination (Roscoe Smith, M. D.)

Carries of 8th and 9th dorsal vertebra.

Healed tubercular process in region of apex of middle right lobe.

Diagnosis: Tuberculosis of spine, 8th and 9th dorsal with deformity.

TREATMENT AND COURSE.

July 15, 1916, patient was placed in bed on back supported by straps and pillows for 3 weeks.

Aug. 4, 1916, body cast applied with patient standing, head in halter which was attached by rope and pulley to ceiling, hands placed above the head. He was drawn up until his feet rested lightly but firmly on the floor. A tight cast was applied with wide circular plaster bandages as low as possible on the hips and as high as possible under the arms and chin. Patient returned to bed for one week.

Aug. 11, discharged.

Sept. 19, 1916. Admitted. Cast in splendid con-

dition but had been out grown, being extremely tight and uncomfortable. He had no pain in back and felt perfectly well.

Since leaving the hospital, he has spent his time out of doors fishing and living a very quiet life.

Cast removed. Weight 200 lbs., (gain of 25 lbs).

Temperature while in the hospital normal except the evening following the application of new cast, when it went up to 99.6° F.

New cast applied similar to former. He was discharged on third day.

Dec. 1, 1916, patient returned having again outgrown his cast. Cast removed, weight 218 lbs. showing a total increase of 42 lbs.

No stiffness of legs, no night sweats. Had run no temperature since he left the hospital.

No ankle clonus, no increase of platellar reflexes. Owing to the remarkable degree of improvement, merely a retaining cast was applied which gave him more liberty.

Jan. 10, 1917, patient reported that he felt perfectly well and would report in 3 months for observation.

In summarizing the remarkable improvement of Mr. B. F. T., during the course of 5½ months treatment, let me emphasize the facts that he gained 42 lbs. had a proportionate increase in strength, is free from pain, has no ankle clonus, no platellar reflex exaggeration, continuous normal temperature, no night sweats.

IN CONCLUSION.

1. Every case of painful back should have thorough examination for suspected caries of spine.

2. In the treatment of this particular case the degree of success was due to the

(a) absolute rest in bed for one month

(b) application of a tight body cast high up under chin and under arms lifting the shoulders and low on hips which gave relatively absolute rest to the diseased spine,

(c) quiet, simple out door life with nourishing diet.

Case Reports from the Clinic of

Drs. Welch, Rowe and Lehnhoff, Lincoln.

The following three interesting lip cases came to us for treatment last month.

Case No. 1. L. H., of Dunbar, Neb. Angioma of the lip and left cheek. Patient is a girl 20 years of age. Since infancy she has had a protrusion of left upper lip due to a soft, compressible purple tumor. The lip is 2½ times as thick as normal. From the vermilion border back under the mucosa and upwards under the greater part of the left cheek the mass extends. It is like a mass of thin walled veins. The patient states it has been enlarging only gradually. On several occasions it has bled very freely when traumatized by the chewing of coarse food.

TREATMENT.

On Nov. 10, 1916, 5 c. c. of 80% alcohol containing 1/10% cocaine was injected. It was carefully dis-

*From the clinic of the Lincoln Sanitarium.

tributed throughout the lower part of tumor by constantly changing the position of the needle. Following this the lip became about twice its thickness in 20 minutes. There was moderate pain for 12 to 18 hours. On Nov. 20, 1916, a second similar injection was used, covering new territory and in part the old, where veins seemed remaining. Similar swellings occurred. There was some sloughing in an area the size of a three cent piece. Two other similar injections were used on Dec. 4th and Dec. 14th. The face is now so nearly symmetrical as to pass unnoticed because of any difference.

The alcohol causes enough irritation and destruction of tissue to result in considerable scar tissue. This contracts, closing the open vessels and reducing the size of the lip. What enters the circulation causes no apparent harm. We fear the cocaine more than the alcohol and prefer to use novocain. That amount which is just less than enough to cause sloughing is best. More frequent injections with small amounts are therefore preferable. We have had no undue bleeding by the use of this method.

Case No. 2. F. R. Chancre of upper lip. Patient is a girl 17 years old. She has been employed as an assistant in kitchen at a hotel. She appeared before us on Dec. 10, 1916, stating that for eight weeks she had had a constantly enlarging tumor upon her upper lip. It began as a "fever sore" she thought. The pain had been moderate. She had continued her duties until the day she appeared. She thought there had been little fever and complained of no other constitutional symptom. The tumor had been lanced four times with little or no escape of pus.

EXAMINATION.

Examination showed a fat healthy appearing young woman. Upon the middle portion of the upper lip was a tumor as large as a big English walnut. It was bloody and crusted below and rather sharply defined by a narrow undurated margin. It was very moderately tender. Mouth and throat negative. Posterior cervical glands palpable. One gland beneath left jaw palpable. Abdomen moderately tender to pressure over region of appendix and lower quadrants. Some leucorrhea which she stated had been present two years. Smears from the serum exuding from tumor showed *Spirochaeta pallida* by Giemsa stains. Wassermann negative.

TREATMENT.

Upon Dec. 14, .3 Salvarsan was injected in right median basilic vein. There was no reaction of importance. Forty-eight hours later the tumor seemed slightly decreased in size. On Dec. 20, 1916, Wassermann was ++. On this day .6 Salvarsan was injected in left basilic vein. A little reaction during the night, consisting of restlessness and some generalized pain. Temperature 99.4. The following day her temperature rose to 101 and she vomited several times. Pains in abdomen, especially on right side and in pelvic region. A vaginal examination revealed tender adnexa and more tenderness over caecum. Maximum P. M. temperature that day 102.6. The next day temperature 103.6, and the nausea and

vomiting continued and abdomen tenderness and rigidity increased. Her abdomen was opened and a badly kinked and injected appendix was dissected from fibrous adhesions of moderately severe grade and excised. Tubes and pelvic adnexa somewhat injected but not purulent. Tumor on lip shed its crust and was at this time about one-half its original size.

Upon Dec. 25th a fine macular eruption, non-itching in character appeared over breast and arms. Conjunctiva injected. Wassermann negative. Dec. 27th .8cc33% mercury salicylate was injected into the muscles of her left thigh.

Picture taken Dec. 14, 1916.



CHANCRE OF LIP.

Case No. 3. Baby W., aged 2 years, 9 months. Complete unilateral hair lip (and cleft palate). Ether anaesthesia begun with a mask and continued with a pharyngeal-tracheal tube placed through the nostrils.

The following principles were observed in the repair of the lip.

A. The plastic flaps of the lip were patterned so that when co-aptated a pouting down of the lip appeared where the cleft had been existed. This allows for later contraction of scar tissue without dimpling.

B. The dissection to free the lip margins was carried far out under Ala and adjoining cheek and well beyond middle part of lip so that little or no tension occurred where margins were co-aptated.

C. Sutures:

One buried chronic cat gut so placed as to bring in and reduce the flattening out appearance of the Ala and nostril was used. Two silk retention sutures tied on mucosa side and grasping all tissues but the skin. Skin approximated with fine horse hair. Silk and horse hair removed on seventh day.

Dr. Chas. A. Oaks.**Resolutions of Respect.**

Whereas, The Almighty, in His infinite wisdom has seen fit to remove from our midst our friend and fellow practitioner, an honored member of the medical staff at Ingleside, Nebraska, and a member of the Adams County Medical Society and,

Whereas, We feel, by his early demise, we have lost a respected member of our society and that the world has lost a brilliant medical mind, therefore be it

Resolved, That we extend to his bereaved family our sincere feelings of sympathy and respect, and that a copy of these resolutions be spread on the minutes of our society.

S. R. Hopkins,

Pres. Adams County Med. Society.

C. R. Spicer,

Secretary.

Hastings, Neb., Feb. 2, 1917.

The following letter from the Board of Control relative to the work of Dr. Charles A. Oaks did not reach Dr. Oaks before his death. The communication is worthy of a place in the Journal in recognition of the faithful performance of medical duties:

"Gentlemen: We desire to commend to your consideration Dr. Charles A. Oaks, who, for the past six years has been a member of the medical staff of the Ingleside hospital for the insane, the largest state institution of its kind in Nebraska. Dr. Oaks is second physician of the hospital and for the past four years has had charge of the receiving service on the female side.

"Before taking up institution work Dr. Oaks was engaged for eight years in private practice.

"Both from our personal observation and from the reports and records on file in this office we believe Dr. Oaks to be exceptionally well qualified for his position. He is a thorough student and one of the best posted men on mental and nervous diseases in the state of Nebraska. He is loyal, conscientious, alert, efficient, reliable and trustworthy, and it is with regret that we accept his resignation.

"Dr. Oaks leaves the service of the state only because the law does not permit a relative of a member of the board of commissioners of state institutions to be employed in any institution under the jurisdiction of the board, and Mr. E. O. Mayfield, father-in-law of Dr. Oaks, has recently been appointed a mem-

ber of this board and will enter upon the duties of the office March 1, 1917.

"Very truly yours,

"Board of Commissioners of State Institutions.

"Howard Kennedy, chairman.

"Henry Gerdes.

"Silas R. Holcomb."

Medical School Appropriations.

The Legislative Committee of the State Medical Association has endorsed the recommendation of the Board of Regents of the University relative to the appropriations desired for the College of Medicine at Omaha. These appropriations call for the equipment and maintenance of the new University Hospital and a new laboratory building. The present laboratory building of the College of Medicine was designed to house seventy-five students. The enrollment for 1916-17 is one hundred forty-six and unless a definite limitation be placed upon student registration a new laboratory building is almost imperative.

Book Reviews.

The Medical Clinics of Chicago, by leading Chicago internists, Vol. 2, No. 3. (Published bimonthly; six numbers a year). Price \$8.00 net. Cloth \$12.00 net. W. B. Saunders Company, Philadelphia and London.

The third number, second volume, of "The Medical Clinics of Chicago" containing a report on a series of clinics held by a group of men in the hospitals of Chicago is an especially interesting one.

Particular attention might be called to Hamburger's article on the modern medical treatment of chronic Ulcer of the Stomach and Duodenum. Hamburger, Ginsburg, and Friedman have been conducting some experimental work on Gastric Ulcer—reports of which have appeared from time to time in the Journal of The American Medical Association, and in this clinic Hamburger gives the conclusions drawn from this work. Abt has an interesting article on Infantile Paralysis containing a review of the literature on the etiology, diagnosis, and treatment that is most timely. Pusey in his clinic at St. Luke's Hospital considers some cases of eczema or of dermatitis indistinguishable from eczema which are caused by external irritants. Among them are primrose dermatitis, Orthoform dermatitis, dermatitis from depilatories and from the "Mange Cure," that is being used so frequently at the present time for treatment of falling hair. Mix in his clinic at Mercy Hospital considers two cases of Primary Pernicious Anemia with cord changes and gives an interesting

discussion of the infectious origin of Pernicious Anemia and the possibility of its being on a Spirochetic basis.

On the whole this number compares favorably with the numbers that have gone before and can be highly recommended to the man, who is unable to get away to attend clinics at the large hospital centers.

F. M. C.

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No. 3

NEXT STATE MEDICAL MEETING—LINCOLN, MAY 8-9-10, 1917.

Preliminary Scientific Program

Nebraska State Medical Association
May 8-9-10, 1917.

Meeting at Lincoln Hotel, Lincoln.

Tuesday Afternoon 1:30 p. m.

SURGICAL SECTION

H. M. Hepperlen, Beatrice, Chairman.

1. Address by Chairman of Surgical Section—Efficient Surgery.
2. Acute Suppurative Osteomyelitis—S. S. Wilson, Nebraska City.
3. Report of Five Cases of Intracranial Pressure with Decompression Results—H. B. Lemere, Omaha.

Abst.

- Case I. Giant hypophyseal tumor.
- Case II. Intracranial pressure. Decompression subtemporal. Sight preserved.
- Case III. Headaches. Nasal operation. Decompression. Death. Autopsy showing large gliosarcoma of cerebellum.
- Case IV. Leutic. Subtemporal decompression. Tumor localized and partly removed. Death 5 days later. Autopsy, spindle celled sarcoma.
- Case V. Brain pressure past three months. Blind. Decompression. Death 10 weeks later. Autopsy.

4. Surgery of the Transverse Mesocolon—Clyde A. Roeder, Omaha.
5. Ludwig's Angina—E. R. Hirsch, Superior.

Tuesday Afternoon 1:30 p. m.

MEDICAL SECTION.

Homer Davis, Genoa, Chairman.

1. New Classification of Nervous Diseases—G. Alexander Young, Omaha.
2. Dementias of the Young—B. F. Bailey, Lincoln.
3. Nervous States—G. W. Dishong, Omaha.
4. Epilepsy—B. F. Williams, Lincoln.
5. The Theory of Psychic Causation in Insanity—L. B. Pillsbury, Lincoln.

6. Society's Duty to Mentally Deficient Children—C. G. Griffith, Beatrice.
7. Arterio Sclerosis and Hypertensions from the Standpoint of the General Practitioner—J. C. Waddell, Pawnee City.
8. Cardiac Arrhythmia—A. K. Detwiler, Omaha.
9. Icterus—A. Sachs, Omaha.
10. Practical Psychotherapy—Chas. H. Arnold, Lincoln.

Wednesday Morning 9:30 a. m.

SURGICAL SECTION.

M. S. Moore, Gothenburg, Presiding.

6. Symposium on Gall Bladder Disease.
 - (a) Cholecystostomy—B. R. McGrath, Grand Island.
Abst.—Indications. Changes resulting. Prognosis.
 - (b) Cholecystectomy—A. F. Jones, Omaha.
Abst.—Indications. Changes produced. Prognosis and Technique.
 - (c) Discussion.
7. Blood Transfusion in Surgical Conditions—A. P. Condon, Omaha.
Abst.—
 - a. Condition where transfusion is valuable.
 - b. Comparison of direct and indirect methods.
 - c. The placing of donor and recipient into groups.
 - d. Technique.

Discussion opened by J. S. Welch, Lincoln.

8. Symposium—Urological Diagnosis.
 - a. Resume of present views of Kidney Infections—C. C. Johnson, Creighton.
 - b. Cystoscopy and Pyelography—C. Emerson, Lincoln.
 - c. Functional Diagnosis—Geo. W. Covey, Lincoln.
9. Prostatectomy—O. H. Hahn, Hastings.
10. Prostatorrhea and Vesiculitis—J. J. Snipes, Lincoln.
11. Acute Gonorrheal Urethritis—H. R. Brown, Beatrice.

Wednesday Morning 9:30 a. m.

MEDICAL SECTION.

Porter Dodson, Wilber, Presiding.

11. Focal Infection, its Relation to Remote Local and Systemic Conditions—A. N. B. Le Moine, Nelson.
12. A few Practical Points in the Clinical Interpretation of the Wasserman Reaction—M. G. Wohl, Omaha.

Abst.—In surgical conditions if a lesion is accessible, excision of a piece of tissue for diagnosis is more reliable than the Wasserman reaction.

If a lesion is inaccessible the Wasserman reaction will point to the condition being syphilitic, only, when the reaction is strongly positive.

Report of cases that illustrate this point.

The value of the Wasserman in surgical conditions of the stomach illustrated by cases.

How to interpret a negative Wasserman and the value of a provocative.

The value of the Wasserman in pulmonary lesions as illustrated by cases.

Conclusion.

13. Intraspinous Medication in Syphilis—Ernest Kelley, Omaha.
14. Popular Consideration of Syphilis—A Plea—F. E. Coulter, Omaha.
15. Late Hereditary Syphilis—H. B. Hamilton, Omaha.
16. Clinical Significance of Indicanuria—H. M. McClanahan, Omaha.
17. Infantile Convulsions and Allied Conditions—Newell Jones, Omaha.
18. Temperature in Children—F. T. Hamilton, Friend.
19. Advantages and Disadvantages of the Country Doctor—G. W. Sullivan, St. Edwards.
20. Medical Treatment of Gastric Ulcer—J. S. Bell, York.

GENERAL SESSION.

Wednesday Afternoon 1:30 p. m.

President W. F. Milroy, Presiding; assisted by Vice Presidents Porter F. Dodson and M. S. Moore.

President's Address—W. F. Milroy, Omaha.

12. Symposium on Military Surgery.
 - (a) Organization of the Medical Department U. S. Army, for field service in time of war.

Abst.—Personnel; equipment; scheme of service on the firing line; first dressing stations; field hospitals; rest hospitals; base hospitals; relations to the Red Cross Society—Colonel J. M. Bannister, U. S. Army, retired, Omaha.

(b) First Aid to the Injured.

Abst.—Improvised dressings, splints, litters—J. C. Tucker, Long Pine.

(c) Lessons Taught by the European Experience in the Present War.

Abst.—Effects of modern projectiles impelled by high explosives; infection by such projectiles; psychology of the wounded; gas infection; X-ray as furnishing prognosis in such infections, and indications

for treatment; tetanus infection; antiseptic irrigation; amputations versus conservative treatment in wounds of extremities; trench feet—J. E. Summers, Omaha.

Discussion opened by D. B. Steenberg, Aurora; M. S. Moore, Gothenburg.

Thursday Forenoon 9:30 a. m.

SURGICAL SECTION.

H. M. Hepperlen, Chairman.

GYNECOLOGY:

13. Symposium on Plastic Surgery of Pelvic Outlet.
 - (a) Cystocele. Perineal damage and Rectocele. P. H. Salter, Norfolk.
 - (b) Prolapse of Uterus—A. I. McKinnon, Lincoln.
 - (c) Fistulous Tracts about the Pelvic Outlet—F. A. Long, Madison.
14. Symposium on Uterine Hemorrhage.
 - (a) Etiological Physiology, Anatomy and Pathology—C. C. Hickman, Beaver Crossing.
 - (b) Surgical Treatment—Palmer Findley, Omaha.
 - (c) Roentgen Ray Treatment—A. F. Tyler, Omaha.

Discussion opened by E. W. Rowe, Lincoln.

Thursday Forenoon 9:30 a. m.

MEDICAL SECTION.

Homer Davis, Chairman.

21. Laryngeal Diphtheria—F. G. Dewey, Coleridge.
22. The Tonsil in General Diseases and its Treatment by the General Practitioner—Robert T. Jones, Edgar.
23. The Conservation of Vision and Hearing. Medical Inspection by the Teacher—E. C. Hayman, Lincoln.
24. Effect of Sinus Disease on the Eyes—Frederick F. Teal, Lincoln.
25. A New Appreciation of Mastoid Operations—J. J. Hompes, Lincoln.
26. X-ray Treatment of Epithelioma, Lupus and other Skin Diseases from the Standpoint of the General Practitioner—R. G. Rich, David City.
27. Protozoa Infecting Intestinal Canal—E. L. Delaney, Omaha.

Abst.—A review of most common protozoa causing diarrheal symptoms with some of their harmless prototypes.

They are much more common than usually supposed.

Lantern slides showing drawings and microphotographs of organisms and charts showing differential diagnosis.

Thursday Afternoon 1:30 p. m.

SURGICAL SECTION.

H. M. Hepperlen, Chairman.

15. Puerperal Sepsis—I. C. Munger, Cozad.

A plea for less exposure of women to sepsis and acute infectious patients through her medical attendant.

16. The year's advancement in Obstetrical Anaesthesia—J. A. Smith, Lincoln.

Thursday Afternoon 1:30 p. m.

MEDICAL SESSION.

Homer Davis, Chairman.

28. Diet in Health and Disease—J. C. Hay, Laurel.
29. Obstipation—Border Line Cases—J. M. Mayhew, Lincoln.
30. Laxatives—A Protest—M. L. Hildreth, Lyons.
31. Service in the Practice of Medicine—A. E. Hedlund, Dalton.

The Etiology and Pathology of Lobar Pneumonia.

Adolph Sachs, M. D., Omaha.

Pneumonia is a disease which was known to Hippocrates and the old Greek physicians, but pleurisy and pneumonia were not at that time differentiated. Aretaeus gave an excellent description of a pneumonia patient, showing that he too, was familiar with the disease. In the beginning of the eighteenth century, Morgagni and Valsalva made many important anatomical and clinical observations, and in 1819, Laennec fully described the physical signs so that very little was left for subsequent observers to add or modify, until our more modern bacteriological studies began. Pasteur and Sternberg, independently of each other, found the pneumococcus in the blood of rabbits, inoculated with sputum, but the true etiologic relationship of the organism to lobar pneumonia was not established until 1886, when Frankel and Weichselbaum published their respective studies on this subject.

The pneumococcus is known by various names: Micrococcus lanceolatus, pneumococcus or diplococcus pneumonia of Frankel and Weichselbaum, micrococcus Pasteur, streptococcus lanceolatus, etc. The pneumococci observed in human or animal tissues, exudates or body fluids, or in media containing non-coagulated albuminous fluids, as blood serum, ascitic or hydrocele fluid, occur typically in pairs surrounded by a definite capsule or less commonly in short chains enclosed in a capsule. Cultures in artificial media which do not contain albuminous fluids are not encapsulated, and the distinctive lanceolate shape is frequently lost, the organisms becoming more nearly oval or spherical in outline. The

tendency to remain adherent in pairs, is usually maintained. Chains of from four to eight elements are developed in broth cultures which led many observers to include the pneumococcus in the streptococcus group. They are gram positive when freshly isolated, but tend to become gram negative during cultivation in artificial media.

The pneumococcus differs from the streptococcus hemolyticus in that the colonies grow green and are not surrounded by hemolytic zones. It differs from the streptococcus viridans by its lanceolate form, by its capsule formation in animals, by its intense green colonies on blood agar. It does not precipitate serum glucose agar, and has the power of fermenting inulin.

The close relationship of pneumococci and streptococci has been shown by the wonderful work of E. C. Rosenow, on transmutation of microorganisms. He has, by special methods, converted streptococci into pneumococci, and vice versa.

The animals mostly used in experimental work are mice and rabbits, for they are very susceptible to pneumococcic infection. It only requires minute amounts of virulent pneumococci to produce a septicemia and kill them in twenty-four hours to three days.

The pneumococcus is present in the mouths of a large proportion of healthy individuals, some observers give as high as eighty to ninety per cent of positive results. The virulence is not always the same, and it has been shown that the saliva of the same individual increased in virulence during the winter months. Some people always harbor the virulent type. The pneumococcus can be communicated from one person to another. Individuals not showing the pneumococcus on repeated cultures, acquired the organisms by association with cases of pneumonia. These germs are not very resistant, for if they are exposed to sunlight for one-half hour, they die. They are not resistant to heat, being killed by an exposure of ten to fifteen minutes at 55°C. Five per cent carbolic acid solution, or 1/1000 Bichloride of mercury readily destroys them. The virulence is rapidly lost during cultivation on artificial media, but the virulence may be restored by passage through

white mice. The original virulence may be increased by repeated rapid inoculations.

The infectious nature of pneumonia was known long before we knew about the pneumococcus. Pneumonia may occur in endemic form, or may be localized in certain houses, barracks, jails and schools. Other germs, such as the streptococcus pyogenes, the pyogenic staphylococci, Friedlander's bacillus, etc., may be associated with pneumococci in lobar pneumonia, but the latter is the chief causative factor, the others being secondary. Pneumococci may also produce other infections besides lobar pneumonia, for example: pericarditis, middle ear infections, meningitis, pleurisy, peritonitis, joint infections, etc.

Cole and Dochez and Gillespie, of the Rockefeller Hospital, New York, confirming and extending work of earlier experimenters (Neufeld and Haendel), have shown that the pneumococcus may be divided into four groups. The cocci belonging to the first two groups, are said to be specific as far as the immunity to which they give rise is concerned. The immune serum arising from injections of pneumococci belonging to Group I, has a specific protective action against all pneumococci belonging to Group I, but does not protect against the pneumococci belonging to Groups II, III and IV. Likewise, a pneumococcus belonging to Group II, will on injection, produce a serum protective against Group II, and no other group.

Group III contains all pneumococci of the type of pneumococcus mucosus. It has not been possible to produce a protective serum for this group. Group IV includes all pneumococci against which the serums prepared by injection of pneumococci belonging to Groups I and II are ineffective, and which, by cultural or pathogenic qualities, can be shown not to belong to Group III.

An immune serum prepared by injection of pneumococci belonging to Group IV is protective against the strain used, but will not protect against other strains belonging to Group IV, nor will it protect against Groups I, II and III. Groups I and II can also be recognized by agglutination tests made with their respective sera. Group III may be recognized by their cultural methods and path-

ogenic characters. Group IV is determined by exclusion.

We know clinically, that some epidemics of pneumonia are more virulent than others, the mortality being high some years, but less so at other times. This can readily be explained by the above grouping, for it is well known that Group II is more virulent than Group I, and also responds less readily to treatment.

Groups I and II, are the commonest types of pneumococcus met with in lobar pneumonia, Group I being responsible for about fifty per cent of the cases, and this yields by far the best protective serum. Group II, however, yields a serum of considerably less efficiency and as stated above, is much more virulent. The other groups have no efficient protective sera, and hence can not be combatted in this way. Further experimental study is needed to extend this most interesting subject in combatting pneumococcic infections.

Immuno-chemistry is now occupying an important place in experimental work. Flexner's experiments on pneumococci are very interesting, but can only be mentioned in this resume. He found that a one per cent solution of soap, such as sodium oleate, converts pneumococci into a viscid mass. Weaker solutions (.1%) do not kill the cocci, but they are more readily autolyzed after being treated by it. In still weaker solutions, they are also more readily autolyzed. The following is tabulated from Irons on Flexner's experiments:

1. Rats inoculated with untreated pneumococci, death in eighteen hours.
2. Rats inoculated with untreated pneumococci, plus immune serum, death.
3. Rats inoculated with soaped pneumococci, death in thirty hours.
4. Rats inoculated with soaped pneumococci plus normal serum, death.
5. Rats inoculated with soaped pneumococci plus immune serum, recovery (animals not ill).

Morgenroth has used ethylhydrocuprein in similar experiments, and it also gives similar results.

Pneumonia is considered an auto infection, on account of the presence of the pneumococcus in most mouths; the important factor in determining the incidence of the disease is the individual susceptibility or resistance to infection. Poor hygiene, lowered resistance, poor food, alcohol, etc., increase the susceptibility of the individual to this infection. Males are more frequently attacked than females. Negroes are more susceptible than whites. No other disease occurs with such frequency in the same individual as pneumonia. It is found in all localities, and in all climates, but is more common to temperate zones where seasonable changes are more apt to occur.

The pathology of lobar pneumonia always presents an interesting picture, but nothing particularly new has been presented in recent years. It is divided into four stages; stage of engorgement, red hepatization, gray hepatization and resolution. In gross appearance, the lung is more firm, does not pit on pressure, and if a section of it is dropped into water, it will sink, showing its lessened air content. There is usually an accompanying pleurisy so that the normal glistening, smooth, pleural covering, becomes rough, dull and opaque, and no longer possesses its glistening shimmer. The lung has the consistency of liver, and cuts with more resistance, hence the name—hepatization.

In the state of engorgement the lung tissue is deep red in color, is firmer to the touch, and on cut section blood and serum are easily expressed. It still crepitates, though not so distinctly as a healthy lung. In red hepatization, the lung tissue is solid, firm and airless, and may show the indentation of the ribs. On section the surface is dry, reddish brown in color, and is much more friable. If one draws his knife over the cut surface, reddish serum is removed, containing fibrin plugs, which are best seen on the edge of the knife blade. In gray hepatization the tissue has changed from a reddish brown, to a grayish white color. The surface is more moist, the exudate obtained is more turbid and the lung tissue is still more friable. Later in this stage, the lung tissue becomes softer and then comes the stage of resolution.

Resolution is brought about by autolytic digestion; which is accomplished by proteolytic enzymes. The leucocytic enzymes are for the most part responsible for the digestion of pneumonic exudates, but the alveolar epithelium and serum enzymes also aid in this important process. The rapid rate of digestion may be accounted for by the absence of circulation within the alveolar contents, which permits the leucocytes to act unimpeded by the anti-bodies of the blood plasma. Digestion continues after death, which accounts for the marked diffuse softening which is found in pneumonic lungs of bodies kept for some days before autopsy is performed. Flexner noted that autolysis was rapid in gray hepatization, and slow in red hepatization, undoubtedly due to the paucity of leucocytes. He also considers unresolved pneumonia as being due to interference with autolysis.

Simon demonstrated the presence of leucin and tyrosin in autolyzed lungs. Rzentowski found an increase of the non-coagulable nitrogen in the blood of pneumonics, probably resulting from the autolysis of the exudate. According to Dick, the blood serum after the crisis contains an enzyme which acts specifically on pneumococcus proteins. The changes found in other organs are similar to those found in any acute infection such as an acute spleen tumor, parenchymatous degeneration in the liver, kidneys, etc.

The microscopic picture is also of interest in the different stages. In the stage of engorgement the capillary vessels are greatly distended, the alveolar epithelium swollen, and the air cells contain numerous red cells, leucocytes and detached alveolar cells.

The stage of engorgement is rarely seen at an autopsy except at the edge of advancing consolidation. The second stage or red hepatization is the earliest commonly seen. At this stage an exudate usually fills the alveoli and is composed of a coarse meshed network of fibrin in which are entangled pneumococci, red cells, polymorphonuclear leucocytes, and desquamated epithelial cells. Mononuclear wandering cells or lymphocytes are also found. The red cells remain intact and no sign of laking occurs. Many of the leucocytes

show active phagocytosis and contain several pneumococci.

In gray hepatization, the alveoli are found to be densely packed with a cellular exudate. Polymorphonuclear leucocytes are abundant and contain many pneumococci. The fibrin is more firmly packed, does not show the fine fibrin network of the earlier stages. Red cells are hardly to be found in the later stages of gray hepatization, and if at all, only shadowy outlines of those which have lost their hemoglobin. The degenerated condition of all cells, is one of the most marked features. The red cells have undergone laking, the leucocytes lose their clear outline, and become granular. Desquamated epithelial cells are also more abundant.

The stage of resolution is rarely seen at autopsy and if found, the process is merely an advance of the above. The advanced disintegration of the leucocytes and fibrin continues and by means of the proteolytic ferments the whole mass is liquified and disposed of. Some of it is expectorated, but the greater quantity is absorbed by the lymphatics, and carried away.

Treatment of Pneumonia.

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Lobar pneumonia is an acute infectious disease characterized by the presence in the blood stream and body fluids of pneumococci which exhibit a special tendency to congregate in the lung tissue and there cause a series of definite and constant pathological changes which up to the present time have resisted all our efforts to favorably influence with any degree of certainty.

For the past twenty-five years no material advance has been made in the medicinal treatment of pneumonia, though the mortality has been considerably reduced, due mainly to the intelligent application of hygienic measures and the adoption of an attitude of "watchful waiting" on the part of the attendant. Hopes are entertained that the near future will furnish us with a true specific for this disease but until such time we are compelled to resort to a symptomatic and constitutional treatment.

While we are waiting for a specific how can we best handle our present cases?

General hygienic and dietetic measures may be adopted for all cases but the medicinal treatment in the absence of a specific will vary greatly in different individuals. At the outset it should be borne in mind that pneumonia is usually a self limited disease running a definite course in a fairly certain length of time; that we are more liable to err in over-treating than under-treating a pneumonic; that a lean lanky individual with an extensive consolidation in both lungs is likely to get well in spite of treatment while a plethoric case with a small amount of involvement is likely to die under the most scientific management; that drugs should only be given to meet a definite indication and when met, stopped, and that we must treat the individual depending on our knowledge of pathology and the signs relative to pathological physiology for our cue as to when to interfere and when to pursue a watchful course.

HYGIENE.

The first great essential is to supply the patient with an abundance of pure circulating fresh air. Probably no one measure has done more to add to the comfort of a patient than this one. It is essential that the air be circulating. An electric fan answers the purpose just as well as having a draft blowing through a window, and is less dangerous. By this means cough is materially lessened, the respirations reduced, the temperature lowered, the pulse slowed and the appetite increased. No one is more conscious of the benefits derived than the patient who has been treated in a closed room and is later supplied with plenty of fresh air.

The second essential is to insist upon absolute rest in bed, avoiding as far as possible all bodily movements which tend to fatigue the patient. All liquids should be given through a drinking tube and the use of a bed pan and urinal insisted upon. The position in bed should be carefully changed at least every two hours.

The nasopharynx, teeth and mouth should be cleansed frequently with a suitable antiseptic solution to avoid additional infection and to prevent the spread of the disease to

attendants. All secretions should be collected in cloths and burned.

DIETETICS.

The diet should be light and easily assimilable. During the height of the disease milk should be the mainstay. To some milk is distasteful, in which case it may be flavored with a little coffee, cocoa, vanilla, cinnamon, etc. Others complain that it disagrees with them. The addition of sodii citrate grains two or vichy drams two to the ounce of milk renders it easier to digest.

If digestion is good milk soups, broths, raw or soft boiled eggs and soft toast may be allowed. Orange juice and grape juice are always relished but should not be given close to the time of milk feeding.

GENERAL MEDICINAL TREATMENT.

If the case is seen during the chill he should be covered warmly in bed, hot bottles applied to sides and feet, cold compress to the head and given a hot drink. A single dose of calomel or blue mass grains five, followed by a saline in three to four hours will insure a thorough opening of the bowels.

If pain has already developed in the side a few adhesive strips tightly applied will make the preathing much easier. If pain persists Dovers powders grains ten or morphine sulphate grain one-eighth should be administered. The local application of ice is grateful in many cases, others receive more comfort from a hot compress but under no circumstances should a heavy, cumbersome application be made to the affected side. With the advent of signs leading to a diagnosis of pneumonia we may commence treatment directed against the pneumonococcic invasion.

The author, for the past twenty years, has used a combination of guaiacol carbonate grains five, quinia grains two, strychnia sulphate grains one-thirtieth every four hours, with better success than with any other routine treatment. In later years creosotal in ten drop doses has been substituted for the guaiacol. Creosote has been proven experimentally to have a very decided inhibiting action on pneumonococcic cultures, quinine is also credited with possessing a similar action and at the same time in small doses

has a tonic effect while strychnia is the best respiratory stimulent that we possess. The use of this combination, while it does not markedly reduce the temperature, apparently keeps it within bounds, expectoration is favored, the respirations are deepened and the pulse strengthened. With a good acting heart and no respiratory distress it is best to omit the strychnia until indications are present for its use.

Thompson (1) states in his work on clinical medicine,

"that after an experience of half a century in the treatment of pneumonia and after trying a great variety of medicines, I came in time to the belief that it did not make much difference what we used or what we do not use. . . . but during the past fifteen years I have seen reason to change my mind. . . . Both in hospital and consultation practice, I have had a greater percentage of recoveries than before, owing, as I suppose, to the use of one drug. That drug is creosote carbonate in fifteen grain doses, every two or three hours in a specially prepared emulsion."

The author has also used inunctions of guaiacol drops fifteen to twenty once daily with gratifying results (2). Under this treatment the temperature fell in every case by the third day and in no case treated was there a crisis, all ending in lysis. This mode of administration is not without its danger as in two cases in whom the dose was increased to twenty-five and thirty drops a mild degree of mania persisting for twenty-four hours resulted. The method of application is as follows:

A hot compress is applied to the side of the abdomen or over the seat of pain in the chest. After a decided blush of the skin is produced three or four drops of guaiacol are applied and rubbed into the skin thoroughly using only one finger, when the skin has taken up this quantity three or four drops more are added and the procedure continued until the desired dose (drops fifteen or twenty), has been applied. The treatment is repeated in twenty-four hours. Usually after the second inunction there is a decided drop in temperature but it rises slightly the next day and then disappears by lysis.

The use of camphor has been extolled by many in the treatment of pneumonia. Formerly it was advised on account of its stimulating effect upon the heart, but since the pharmacologists have denied to it this action it is heralded as having an inhibiting action

on the pneumonococci circulating in the blood.

Seibert and Cruickshank (3) direct that a 30% solution of camphor in oil of sesame be employed as soon as possible after the initial chill. The dose is 10cc. for every 100 pounds body weight repeated every twelve hours until there is a decided betterment. In bilateral cases, or those with profound toxæmia, the second dose is given in six to eight hours. The site chosen is the outer side of the thigh or abdomen and a long enough needle used to penetrate below the subcutaneous fat, otherwise an abscess is likely to result.

Markenitch (4) using a 10% solution reports 225 cases treated with a mortality of 6.6% while in 322 cases treated without camphor 13.3% died.

Treatment of Special Symptoms.

FEVER.

Fever in pneumonia is a temporary condition and instead of being harmful usually proves beneficial. Pneumonic patients do best when carrying a temperature between 103-4 during the first few days and it is unnecessary to adopt measures to lower the temperature. A temperature of 100 may mean a mild attack but it is just as likely to be due to poor resistance on the part of the patient.

When the temperature is high (105 or over) an ice bag applied over the affected side or several placed over the large superficial arteries (axillary, femoral, popliteal), will relieve the temperature, allay the nervousness and strengthen the heart action.

Cold compresses made of two or three thicknesses of linen cut to fit the entire chest, wrung out of water at 60°F. and covered with a piece of flannel, are more grateful to some patients. These should be changed after an hour if the linen is warm. The intermittent application of cold in this manner acts as a stimulant to the vasomotor system, an effect very much desired, as the toxæmia has a paralyzing effect on the vasomotors. (5).

Antipyretics given for the sole purpose of reducing the temperature are not only useless but harmful.

INSOMNIA.

One of the most pronounced effects of the toxæmia on the nervous system is the production of insomnia which if not controlled frequently passes into a state of active delirium. A ten grain Dovers powder given at night is productive of sleep and at the same time allays the cough and pain in the side. If delirium is present hyoscine hydrabromide grain 1/100 hypo is most efficient.

COUGH.

Unless the cough is troublesome and robs the patient of sleep no medicament is necessary. Cases treated with plenty of fresh air rarely complain of cough except at the onset. In the cases in which it is incessant or unproductive, small doses of morphine may be given for relief. In no case is it wise to use the stimulating expectorants as they invariably upset the stomach and interfere with digestion.

CARDIAC FAILURE.

Cardiac failure may result from the effect of the toxæmia on the myocardium or from engorgement of the right ventricle. Evidence of failure is furnished by weakness, irregularity or increasing rapidity of the pulse beat. A study of blood pressure at this point gives us some information as to proper treatment.

With a diastolic pressure of 65 and a systolic of 155, we infer a low vasomotor tone, but against this is a strong ventricular action, consequently cardiac stimulants are not indicated. If both the diastolic and systolic pressures are below normal it points to low vascular tone plus a failing heart and stimulants are imperative. A systolic pressure, (expressed in MM) exceeding the pulse rate is ordinarily a favorable sign. With the indications for cardiac stimulation present, the combination of tincture digitalis M XV, strychnine sulphate grain 1/20, caffein citrate grains 3, every four hours is very efficient. With a betterment in heart tone the dosage should be reduced and then stopped.

If the pulse is weak, rapid and irregular, the skin dusky and covered with cold perspiration the condition is critical and demands heroic treatment without loss of time.

Under such circumstances there is no drug so potent for good as strophanthin given intravenously.

To improve the low vascular tone when the cardiac muscle does not require stimulation, adrenalin drops ten (1/1000) hypodermically every two hours is useful but its action is not lasting.

Pituitrin has even a more powerful action and the effects last longer.

In cases of falling blood pressure and evidence of extreme toxæmia, saline injections by bowel or intravenously fulfill a twofold purpose, stimulating the circulation and diluting the toxins. In alcoholics whiskey should be given freely.

RESPIRATORY FAILURE.

Respiratory failure is recognized by increasing dyspnoea and cyanosis.

In a strong athletic individual there is more likely to be, early in the disease, a rapid congestion of the affected lung with dilatation of the right ventricle and extreme dyspnoea. In such a case no measure can compare to the withdrawal of twelve to sixteen ounces of blood and the procedure repeated with a return of the signs.

Even late in the disease when the countenance is dusky, the veins of the neck prominent and evidence of stasis in the internal organs, venesection affords prompt relief when rightly used. Failure to obtain results from venesection is due to two causes, first, the removal of too little blood to relieve the congestion and secondly its employment in cases in which the indications for its use are not present.

Oxygen is a powerful respiratory stimulant and has carried many a case over the crisis. To be successful large quantities are required which renders it prohibitive to patients in moderate circumstances. Under its use dyspnoea is relieved, the pulse and respiration strengthened and sleep promoted.

Of drugs, strychnia is the most valuable in this emergency given hypodermically in doses of grains 1/15 to 1/20 and repeated until physiological twitching occurs. Failure to respond may be met by atropine grains 1/75 to 1/50.

PULMONARY OEDEMA.

With an active intense congestion, oedema of the lungs may occur early and is not an infrequent complication later in the disease. When the first signs appear the foot of the bed should be elevated to promote free drainage of the serum into the large bronchi and a hypodermic of morphine grains 1/12, atropine 1/75, strychnia sulphate grain 1/30 administered. Solution adrenalin 10-15 M hypodermically is also highly advantageous.

SPECIFIC TREATMENT.

Antipneumococcic Serum.

Recent advances in the study and isolation of different groups of pneumococci have stimulated the serologist to renewed activities in his effort to discover a specific for the treatment of pneumonia. Dochez and Gillespie (6) have succeeded in dividing the pneumococci into four groups according to their immunological properties.

Type I is most frequently found in lobar pneumonia (35%) but type II (30%) and type III (5-10%) produce the same pathological changes in the lung and are indistinguishable clinically from the former. Type IV (20%) is the form usually found in the mouths of healthy persons and is much less virulent.

Serums have been prepared from groups I, II, III. That they materially differ from each other is proven by the fact that each serum is specific for its own type. In other words the serum prepared from type I shows no agglutinating property toward type II, or type III, or that from type III against type I or II. Treatment with serum prepared from type I has given an encouragingly high percentage of recoveries in cases due to infection with this type of organism.

Cole (7) reports that of the last fifty cases of pneumonia with type I infection, treated with its specific serum at the Rockefeller hospital, only two succumbed. In another group of fifteen cases, one died (6.6%) as compared to a mortality of 24% in thirty-four cases not receiving serum treatment. The serum from type II has not been so successful though comparative results show in its favor. Of eight cases due to type II in-

fection and treated with serum 25% died while in thirteen cases not treated with serum 61% died. Serum used against type III has been unsuccessful. The mortality of untreated cases infected with type IV is only 10%.

Extensive researches have also been carried on in chemotherapy in the hope that some drug might be discovered which would possess the property of inhibiting the growth of all types of pneumonococci circulating in the blood.

Loeb, Lowe, Meyer and others reported favorable results in limited number of cases after the administration of ethylhydrocuprein a new derivative of quinine. This drug when administered to mice has shown a definite curative effect when given early and has also the property of protecting them against subsequent infection. In vitro it is capable of inhibiting the growth of all four types of pneumonococci in dilutions ranging from 1-50 to 1-1,000,000.

A large percentage (30%) of the experimental mice have died from toxic effects of the drug though no reports are available indicating any such toxicity for man. Transient amblyopia and other toxic symptoms, (though not fatal) have been reported in a few cases.

Leschka (8) reports a summary of 204 cases in which this drug was used during the first three days with a mortality of 5%. Of 119 cases treated after the third day 20% died. The dose is four grains four to six times daily.

BIBLIOGRAPHY.

1. Thompson Clinical Medicine.
2. Therapeutic Gazette 1904.
3. New York State Med. Jour. 1914.
4. Int. Clinics. Vol. 1-15.
5. Medical Record, 1914.
6. Medical Record, 1915, Vol. 1.
7. J. A. M. A. 1916, Vol. II.
8. J. A. M. A. 1916.

Chronic Alveolar Abscess as a Source of Systemic Disease.

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When we come to consider the very great length of time it has required for most of

us in the dental, as well as the medical profession, to appreciate and recognize the influence upon the body as a whole of certain pathological mouth conditions, we are called upon to consider more seriously what measures we shall take in the possible eradication of these manifestations of disease.

Many dentists as well as many physicians are today of the opinion that too much importance has been placed on the theory that the so called apical abscess as well as peridental infections are common causes of diseases of the body, remote from the dento-alveolar abscess in the mouth. It certainly may be true that the destruction following in the wake of a dento-alveolar abscess, i. e., certain systematic disorders, may be overestimated at times, because of the fact that we are apt to be over enthusiastic in new discoveries in our professions. However, time will prove the exact relationship between oral foci and systemic disorders of the body. Many men in both professions have already proven so much that we cannot intelligently deny the possibility of systemic diseases from oral infections. It is not so many years past that the germ theory of disease was disputed and considered untenable, and yet at the present day no one in any of the allied professions who is versed in medical science would dare to deny its truth.

It would certainly be folly indeed for us to ascribe all ailments of the body to foci of infection, and yet on the other hand we cannot close our minds to certain well proven facts in this connection. The writer wishes to note that when the field of the dental profession is invaded and criticism of its operations made by those who know nothing of the difficulties encountered in restoring the lost parts of the teeth, the profession is not discouraged but on the contrary is more determined to produce a service through which no trace of disease may follow.

Many dentists and not a lesser number of physicians have in the past shown considerable indifference toward chronic mouth infections, and likewise the different lesions of the mouth have been given comparatively little attention by the layman. If a similar infection to that found in the mouth were found in any of the long bones of the body

or on the skin, it would at once be considered seriously. It is only within the last few years that all of the thinking members of both professions are taking a keener interest in the hazards following in the wake of certain pathological pictures in the mouth which are revealed to us both clinically and roentgenologically.

Long before the science of bacteriology was established, some physicians as well as dentists, by clinical observations alone, associated oral infections with certain lesions of the body which they were unable to cure until the diseased teeth were removed and the mouth generally cleaned.

In the Dental Cosmos for September, 1891, Miller started a series of articles entitled "The Human Mouth as a Focus of Infection." He said at that time:

"During the last few years the conviction has grown stronger and stronger among physicians and dentists that the mouth presents an important part as a gathering place and incubator of pathogenic organisms, also that it is the origin of many diseases, and if the diseases could be traced they would be found to have their origin in the mouth."

Hunter of England was probably the first to positively point out the relations existing between systemic disorders and mouth infection, making his conclusions from clinical observations alone. Billings, Rosenow, Hartzell, Price, Grieves, Davis, and others have since conclusively settled this question by clinical and bacteriological investigations.

Organisms which produce systemic manifestations have been believed for a long time to be disseminated from local infections. It has also been believed that areas of localized infection in a certain part of the body at times set up a secondary focus in certain other parts of the body, as for example, a diffuse nephritis which so often follows an acute attack of tonsillitis. Observations were made by some, that septic emboli arising from infected wounds, or as a result of surgical procedures, were transmitted by the blood to remote parts, producing secondary infections. These facts were known long before bacteriological science. Irons and Brown,

1916, in the Journal of the A. M. A., proved conclusively that with the removal of chronic abscessed teeth, such secondary lesions as iritis and neuritis were relieved

Dr. Frank Billings says: "Infection about the mouth, especially when confined, that is, undrained; of the tonsils; the nasopharynx and of the tooth alveoli may give rise to systemic infection anywhere in the body including the heart, kidneys, the joints, stomach, gall bladder, intestines, and appendix vermiformis. Such infection may also give rise to more general infection of the body with general debility."

There are very few people who in adult life do not possess a focus of infection in the mouth. To further quote Dr. Billings:

"That more people do not suffer from infection from the mouth is due to the fact that their general resistance, that is, the defenses of the body, is strong enough to withstand the general infection from the mouth. At any time, however, such an individual may have the resistance so lowered by many factors that cleanliness of the mouth is one of the most important hygienic measures from the modern point of view."

We find in the mouth normally a great variety of bacteria, some saprophytic and others pathogenic. It is not the intention of the writer to take up the discussion of the bacteria of the mouth in general in their relationship to the alveolar abscess, but only to consider certain organisms which may be found in chronic abscesses.

The organism which has most frequently been found in chronic abscesses of the teeth and jaws is also found to be quite constant in the mouth, namely, streptococcus viridans. It may not necessarily follow that the infection at the end of the root of an abscessed tooth had its origin from the entrance of bacteria into the pulp chamber and thence to the apical end of the tooth. The death of the pulp may be the result of a blow which has cut off the blood supply, and the same organism, i. e., streptococcus viridans, was isolated from the end of the tooth. This thought led Doctor Gilmore and his associates to the opinion that the source of the organ-

ism was problematical, and that often root abscesses are secondary to other foci in the body and that the bacteria reach the root end through the lymph and blood stream. This seems most plausible since it has been proven beyond question that infections of the heart, joints, etc., are of haematogenous origin. The death of the pulp may have been from trauma, as just referred to, and the infection may have found its way to the apex from some other infected root end. At this time the root end is a good culture media due to its lowered resistance.

Another thought in this connection conveyed to the writer by Dr. Warren Y. Thompson, relative to origin of infection in connection with death by trauma, was that at the same time the peridental membrane also was traumatized, resistance lowered by the blow, and the organism being commonly present might at this time invade the peridental membrane and find its way to the apex.

The investigations made by Rosenow along the lines of elective affinity of the streptococci for certain tissues probably did more to solve the true etiological factors of certain pathological pictures than any work previously done. Through the result of his investigations we have learned that certain strains of streptococci have a definite affinity for certain tissues. He found in his experiments that cultures taken from infected appendices of fourteen cases produced appendicitis in sixty-eight per cent of sixty-eight animals when injected intravenously. Also cultures made from animals in three cases of myositis produced myositis in seventy-five per cent of forty-five animals he injected.

We cannot place all the ills of the body at the door of dead pulps as has been said, but one thing is certain, the dental profession can qualify to remove all pathology of the mouth which may be a contributing factor to a diseased condition of the body. Neither can we condemn the theory of focal infection because the patient does not recover after the removal of the infection of the mouth, as there may be other sources of infection, as an appendix, a maxillary sinusitis, gonorrheal urethritis, a cholecystitis, etc., and without

removal of all of these complications a complete recovery cannot be expected.

Joint infections and endocarditis, etc., are not in reality diseases, they are only manifestations of disease, and it is the remote cause of the disease which concerns the internist. It must be our duty to search out and remove the possible infection of the mouth, thus doing our share towards the cure of the sufferer. Whether the patient has a local manifestation of a disease or not, it is our duty to remove all pathology of the mouth. Occasionally we will close the doors to infection instead of waiting until damage has been done.

It might not be amiss in this connection to say a few words relative to vaccine therapy. With the introduction of vaccines a good many men have thought that vaccines would prove a "cure all" for the various systemic disturbances arising from foci of infection. It is the opinion of the writer that it is worse than useless to employ vaccine therapy for the cure of metastatic infections as long as the primary focus is present, for example, the dento-alveolar abscess as it concerns the dentist. The general resistance of the body as a whole is almost always sufficient when the focus is removed, and the stirring of the infection in removal of an abscessed tooth with careful curettage produces a natural vaccine in itself through the stimulation of antibodies.

The writer, after some very careful observations following the removal of chronic abscessed teeth, has been impressed with the importance of progressing very slowly and cautiously. Not infrequently a considerable reaction follows interference, not only by an occasional local reaction in the mouth, but at times by a most alarming aggravation of the systemic manifestations.

Too often we become too enthusiastic and are tempted to remove the entire pathology at one sitting, with the result that we do our patient more harm than good. Even death has followed the radical removal of the entire pathology at one sitting.

The Roentgen Treatment of Uterine Hemorrhage.*

E. W. Rowe, M. D., Lincoln.

The object of this paper is to discuss a new method of treating uterine hemorrhage. For a number of years the use of the Roentgen rays has been creeping, in a legitimate way, into all fields of diagnosis and therapeutics. From the standpoint of surgery and gynecology it has added another means of control. It often offers a milder and less radical course of treatment. It is said that one-third of the women who seek advice for gynecological troubles complain of one predominating symptom—hemorrhage. It is not saying too much that in selected cases no other means of treatment gives the same satisfactory results.

The modus operandi of normal menstruation has been explained by knowledge of the action of Roentgen rays on the ovary. Because the Roentgen rays destroy the follicle apparatus of the ovary and thus automatically cause menstruation to cease, it follows that menstruation depends on the presence of the ripening Graafian follicle and its corpus luteum. Upon the production of artificial menopause depends the practical application of Roentgen rays to the control of uterine hemorrhage. This applies in all cases. To it is added only one other condition. In those cases where tumors are present the destruction of the tumor and its circulation, cancer or fibroid is a happy accompaniment.

There is now little doubt that a chemical substance arising from changes in the corpus luteum and circulating in the blood current causes the cyclic changes in the endometrium. This is proven not only by the action of the Roentgen rays but by the absence of menstruation after castration, and the return after ovarian grafting. Bleeding from the uterus is not due to changes in the endometrium. Chronic endometritis is a pathological rarity. All that can be said of the endometrium is that it is the site of hemorrhage. The mechanical effects of arteriosclerosis and fibrosis are negligible. Further, uterine hemorrhage is not a symptom of high blood pressure.

The action of the Roentgen rays is to destroy the corpus luteum, the ripening follicles and if carried far enough even the primordial ova. The ovary becomes more and more fibrous. In women nearing the menopause it is easy to produce permanently the cessation of normal menstruation. In younger women it is more difficult because of the greater resistance of the primordial cells. If all ripe and ripening follicles are destroyed the menstruation ceases until primordial cells have time to ripen and rupture. The method followed successfully to produce the menopause is to completely sterilize and then give, for a year, at intervals of three to four months, roentgenization.

The destruction of tissue by the Roentgen rays follows this order: lymphocytes, ovum and follicle apparatus, bone marrow, spleen, parenchymatous glands, connective tissue and bacteria. The action on the ovary is rapid. In the ovary of a rat there were changes in three hours, and in twenty-four hours degeneration. The injured ovary did not recover. Ovulation occurred only on the development of primordial ova.

The classification by Dr. Schmitz of Chicago is comprehensive. He divides uterine hemorrhage into two classes:

- (a) Typical or normal hemorrhage.
- (b) Atypical or abnormal hemorrhage.
 1. Accidents of pregnancy, labor and puerperium.
 2. Functional derangements of the genital organs without any demonstrable pathology.
 3. Diseases of the generative organs with a demonstrable pathology.
 4. General constitutional and systematic diseases.
 5. Vascular changes.

For obvious reasons, the normal menstruation and accidents of pregnancy, labor and puerperium have no place in this discussion.

Functional derangements without demonstrable pathology occur frequently. These cases offer one hundred per cent cures by the simple method of roentgenizing the ovaries to the point where menses cease. This means the destruction of all ripe and ripening follicles. In the young, menstruation will return and if the hemorrhage recurs the treatment may be carried out to the proper shading. There is no case on record where this

(Continued on page 265)

*Read before the Elkhorn Valley Medical Society, Jan. 30, 1917, Fremont.

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State Association Meeting.
May 8-9-10, Lincoln.

Every effort is being put forth to make the State Medical Meeting of 1917 the most successful and profitable in the history of the Association. A perusal of the preliminary program gives one an idea of the large number of valuable contributions to medical progress which will be presented. No practicing physician is sufficient unto himself and the stimulus of new ideas and methods cannot be minimized. A physician, desirous of offering the greatest service to the community must of necessity keep pace with medical thought and no single opportunity offers so much as the State Association meeting.

Plan now to attend the meeting and help make 1917 a banner year of the Nebraska State Medical Association. Time lost is negligible in proportion to the benefit derived. Hotel reservations should be secured early.

Do not forget the ladies—bring them along. Special entertainment has been provided for the wives of all visiting physicians.

Get the most out of the good fellowship of the meeting by increasing your acquaintance

among your fellow practitioners and add to their enjoyment and your own by proving a good booster. Everything to make Nebraska a state of high medical ideals—free from Charlatanism.

The Physician’s Perspective.

It is interesting to note the changes that take place in the practice of medicine as changes take place in the economic life of a community. In the sparsely settled community before the advent of rapid transportation the family doctor was a specialist in all lines. This broad view of medicine mingled with intimate contact with human life in all its phases enabled him to guide the sick of the community safely over many pitfalls.

With the introduction of rapid transportation, the common use of the telephone in rural communities and the increase of urban population a new type of physician was forced into existence, the specialist. For a time the idea of individual specialists prevailed but now the pendulum is swinging in the other direction pointing the way to the combination of specialists. By a group of men, each one a specialist in one thing, working together, the patient gets the service of an expert in all parts of his examination and treatment. This kind of organization gives the maximum of service at the minimum of cost and has a broadening effect on every physician in the organization, helping him to look at the human body as a whole rather than made up only of that part of the anatomy to which he devotes special study. This broad view is the only rational view for a physician and we should use every means to preserve such a perspective.

Why Not a “Firm” Fee?

The “Journal” is in receipt of a communication from a citizen of the state voicing a strong protest against “combines of physicians.” This citizen describes his case as follows: “A man of moderate means, was advised by his family physician to consult a certain city physician in regard to his seven year old daughter, a sufferer from asthma. The city physician, a reputable man, was in partnership or association with three other

reputable and competent physicians. Each of the four in his respective line examined the child and each claimed a consultation fee. The father cannot understand the size of the combined bill in that no benefits were derived nor results of the examinations explained. He also fails to see the necessity for the detailed and nerve wracking examinations to which his daughter was subjected."

This brief citation deserves consideration. There can be no valid argument advanced against the association of competent specialists. Each supplements the other with vastly more accurate and scientific results. The day of the general practitioner who knows everything and who can "cure" anything has passed. Associations or organizations of physicians are springing up the country over with surprisingly better results and increased efficiency. But how about the case cited? It is obvious that a certain definite and reasonable "firm" examination fee should be determined upon; that the fee should be understood beforehand and its purport explained. Few patients will object to expense for laboratory or special examinations if the situation is clearly set forth and the fees reasonable. For physicians to pursue any other course creates distrust and lacks the elements which promote confidence between physician and patient. Patients have a right to know that the examinations are needed and that thereby the physician will be in a better position to give advice. The element of a real personal interest in each case, so strongly held by the family practitioner, is too often lacking in the busy office specialist.

Bone Syphilis and Bone Tuberculosis.

It would appear that present day ideas about the frequency of bone and joint syphilis in children are rapidly changing. It was formerly held that most joint diseases of a chronic nature in children and the young was of a tuberculous nature. In fact, many cases are on record where joints have been resected, where large portions of the shaft of bone have been removed in which the operation failed to meet the usual success, leaving sinuses or some other complication which prolonged convalescence until mercurials and

iodides were given, resulting in quick healing thus proving the real nature of the malady. Years ago many authors mentioned the fact that many cases of tuberculous joints (wrongly diagnosed) showed great improvement under antisyphilitic treatment. In fact, in some large hospitals mercurials were used as a routine in joint inflammation in children. The widespread use of the Wasserman test has brought this agent to the command of the orthopedist so that the prevalence of syphilitic joints is being recognized. It is often true, however, that syphilis of the bone will give a negative Wasserman reaction. Some of these negative tests can be made positive at a later date by giving a small dose of neosalvarsan as a provocative. Even when a provocative is used a small percentage of cases will still remain negative to the Wasserman test but will respond quickly to vigorous antisyphilitic treatment.

Probably the most valuable aid to the diagnosis of syphilis of the bones and joints is the Roentgen ray. In syphilis there is found extensive new bone formation while tuberculosis is almost entirely a bone destruction process. In syphilis of bone the pathology revealed by the Roentgen ray will usually be out of proportion to the symptoms recited by the patient, while in tuberculosis of bone the pathology revealed by the Roentgen ray will be less than expected. Although the Roentgen ray is so valuable in examination of the bones it should never replace but should supplement the clinical findings. The patient is still a complete human machine in spite of the high specialization made necessary in the practice of modern medicine.

The Fox Bill.

At this writing Senate File No. 60, known as the Fox bill, fostered and urged by the legislative committee of the State Medical Association has passed the Senate by unanimous vote. This bill goes now to the House where it will replace House Roll No. 124, a bill identical in character. It is stated that the sentiment in the House is strongly in favor of the Fox bill and the state may at an early date hope for a better public health organization.

State Secretary's Column.

Association memberships lapse — without notice—if dues for the current year are not paid by March 31st.

Plan to attend our annual meeting in Lincoln, May 8-9-10, 1917.

Headquarters at the Lincoln Hotel.

Delegates or alternates should present credentials properly certified by your County Society president and secretary at the meeting for organizing the House of Delegates.

Chairmen of Standing and Special Committees are asked to prepare written reports to present in person, or by mail, to your State Secretary for presentation when called in our House of Delegates. Reports are for the calendar and fiscal year ending Dec. 31, 1916, as directed by our Constitution and By-Laws. Ask your county secretary for a blotter giving the number of members and non-members in our county societies. He has a supply of them.

Our new advertisers are:

Sanford Hotel, 19th and Farnam St., Omaha, Neb.

The O. & W. Thum Co., Grand Rapids, Mich.

The Victor Electric Co. advertisement appeared in our February issue but notice of it was omitted.

NEBRASKA NOTES.

Dr. A. E. Mack recently returned from a visit to California.

Dr. A. L. Berggren has removed from Niobrara to Verdigre.

The Northwest Nebraska Medical Society will meet in O'Neill March 20, 1917.

Dr. Leo Kilin has become associated with Dr. Morris Nielsen in the practice of medicine at Blair.

The engagement of Dr. Frank M. Conlin of Omaha to Miss Harriet Dixon of North Platte is announced.

Dr. C. C. Allison of Omaha, who has been confined at home for some time by a severe illness, is now much improved.

Dr. H. L. Arnold and wife spent three weeks during February in New Orleans and other southern cities.

Dr. R. C. Christie of Clarks has arranged for a large residence which he will equip for hospital purposes.

Dr. C. A. Hull and wife of Omaha recently returned from a short vacation spent at New Orleans and Chicago.

Dr. E. J. Updegraff of Omaha, assistant general surgeon of the Union Pacific, is spending the winter in California.

Dr. S. G. Zemer of Lincoln is taking a post-graduate course at Harvard and at the Manhattan Eye, Ear and Throat Hospital.

Oxford, Nebraska, has started agitation for a city hospital. The project has been undertaken by the German Lutheran organization.

The Omaha Roentgen Society held the annual election of officers recently. Dr. C. H. Ballard is president and Dr. W. L. Ross, secretary-treasurer.

Dr. D. W. Meredith of Ashland has disposed of his practice and will remove to Omaha. Dr. Meredith has a host of friends in Ashland who regret to see him leave.

Dr. LeRoy Crummer is expected to return soon from a two months trip to the Hawaiian Islands. His mother accompanied him as far as Los Angeles where she remained visiting during the doctor's absence.

Among the Nebraska physicians attending the meeting of the Western Roentgen Society in Chicago February 16-17 were M. D. Baker of Tilden, E. L. Brush of Norfolk, A. D. Dunn, A. P. Overgaard, T. T. Harris, C. H. Ballard and A. F. Tyler of Omaha.

Dr. Willis Flamm, graduate of Creighton Medical School, 1909, now practicing at Amarillo, Texas, recently spent two weeks in Omaha brushing up on clinical laboratory examinations and roentgenology. From Omaha the doctor went to the Mayo Clinic. The doctor is specializing in abdominal surgery.

The Nicholas Senn Hospital, Omaha, recently invited Dr. E. H. Skinner of Kansas City to give an address before a group of about fifty physicians. The subject of the evening was "A Method of Determining When a Fracture is Properly Reduced." The evening was a pleasant and helpful one to all present.

The Odontological Society of Omaha has instituted a helpful and broad plan in their programs

for the spring months. The plan is to invite physicians as guests at each meeting, the subject under discussion being one of interest to both dentists and physicians. The February meeting was held at Hotel Castle, the subject being "Focal Infection."

The students of the University of Nebraska College of Medicine at a mass meeting held recently organized a medical unit composed of more than fifty men. They will offer their services to the government in case intervention in the present European war becomes necessary.

The many bills calculated to destroy the present Nursing Law have been disposed of as far as the present session of the legislature is concerned. The Medical Committee of the House held a hearing on most of these measures and very few of them got beyond the committee stage.

There is a movement on foot for the establishment by state legislation of a new City and County Hospital in Omaha. A bill authorizing such an institution has been prepared by the committee of the District Judges and will probably be introduced at this session by the Governor.

The recent inspection of Creighton Medical College by Dr. N. P. Colwell, representing the Council on Medical Education A. M. A. and Dr. J. W. Means, representing the Association of American Medical Colleges, resulted in the granting of a Class A rating. The report made by this committee at the meeting of Association of American Colleges early in February was unanimously adopted.

SOCIETY NOTES.

Cherry County annual meeting Feb. 3, 1917.
Officers Elected.

President, J. M. Tische, Wood River.
Secretary, A. N. Compton, Valentine.
Eight members paid for 1917.

The York County Medical Society met at the York hospital Wednesday, January 31st. Officers elected were as follows:

Dr. G. P. Shidler, president.
Dr. J. S. Bell, vice president.
Dr. B. A. Root, secretary-treasurer.

Drs. D. D. King and E. B. Hanna were named as delegates to attend the state convention.

The Scottsbluff Medical Society met in Gering Tuesday, January 30th. Fourteen members were present. Dr. H. J. Lehnhoff of Lincoln was present and gave an interesting talk. The next meeting will be held in Scottsbluff.

The Gage County Medical Society met in Beatrice, Tuesday, January 30th, and the following officers were elected:

Dr. D. G. Griffith, president.
Dr. H. J. Sloss, vice president.
Dr. F. W. Buckley, secretary-treasurer.
Dr. A. Lee, censor.

Papers were presented as follows:

Diseases of Infancy—Dr. C. S. Curry.

Therapeutics of Ciliary Body Disease—Dr. E. M. Ware.

Pneumonia—Dr. H. G. Schooling.

The next meeting will be held at Wymore.

The Custer County Medical Society met in Broken Bow Tuesday afternoon, February 13, 1917. The following officers were elected:

Dr. G. I. Sellon, Broken Bow, president.
Dr. J. E. Dunn, Arnold, vice president.
Dr. C. L. Mullins, Broken Bow, secretary-treasurer.

The meeting was devoted largely to a discussion of House Roll No. 124, known as the Fox Bill.

Those present were: Drs. W. R. Young and R. P. Higgins, Ansley; Drs. J. H. Morrow and A. R. Downing, Merna; Dr. J. E. Dunn, Arnold; Dr. Bryson, Callaway; Dr. C. T. Owings, Dunning; Dr. Wills, Anselmo; Drs. Mullins, Sellon, Talbot, Potts and Hurst of Broken Bow.

The Harlan County Medical Society at their recent meeting in Orleans elected the following officers:

Dr. Bartlett, president.
Dr. Gardner, vice president.
Dr. Baker, secretary-treasurer.
Dr. Vallicot, censor, three years.
Dr. Rundall, delegate to state medical association.

Necrology.

The sincere sympathy of the medical profession of the state is extended to Dr. H. E. Wells of West Point on the death of his wife.

Dr. Wm. C. Campbell for many years a practitioner at Creighton, Nebraska, died in Omaha February 6, 1917. Dr. Campbell was prominent in medical circles in north Nebraska and his death marks the passing of one of our pioneer medical men.

Dr. M. O. Ricketts, age sixty years, a colored physician of Omaha, died recently in St. Joseph, Mississippi. Dr. Ricketts came to Omaha at the age of nineteen years and graduated from the Omaha Medical College. He served in the legislature from Douglas county two terms and was widely known.

The Roentgen Treatment of Uterine Hemorrhage.

(Continued from page 261)

action on ova caused deformity of mind or body in case of future pregnancy. Of course rest, tonics, uterine styptics, curettage and even blood transfusions should be used if

necessary. But this is a class where a small per cent may be saved hysterectomy or oophorectomy with its hopeless sterilization and severe interference with internal secretions. In all cases Roentgenization may be carried to the point of control. Permanent amenorrhoea is hard to obtain in the young.

During the years of sexual maturity is the time for most frequent hemorrhage. Often only an enlarged uterus is found. Curettage is of no avail. Some of these cases desire more offspring and rebel at surgery. When by careful examination, even by the microscope no pathology is found, the Roentgen rays offer certain and sure relief. The degree of treatment may be gauged by the results desired.

Just before the climacteric, the greatest caution must be exercised. Then every case of hemorrhage is potentially one of cancer until proven otherwise. If a few intensive treatments are not beneficial the diagnosis of hemorrhage without pathology is wrong. More often carcinomata or submucous fibroids are present.

To the third class, or hemorrhage with demonstrable pathology belong:

- (a) Tumors of the uterus and adnexia.
- (b) Inflammations of the pelvic organs.
- (c) Circulatory congestion due to scars, faulty displacements, impacted feces, pressure from neighboring tumors.

Removing the causes will cure all except the tumors of the uterus and adnexia. By far are carcinomata and fibromata most common.

In the consideration of cancer, surgery of course is the great hope of cure. Promising as are some of the reports of famous gynecologists the results of the best surgery are discouraging. Dr. Call of the Massachusetts General Hospital operates all cases of cancer of the uterus. He says fifty per cent that come are hopeless and they are refused operation. The operating mortality is 15-30 per cent. He says surgery has not done its best until the most radical operation in the hands of the most skillful men has been performed. He does the Wirthheim operation. Many of the remainder die of recurrence. With Roentgentherapy on a scientific basis, with the

physical limitation practically reached, is it not sane to ask that this one added agency be given for the patient's good? Many inoperable cases have been rendered operable. The toxemia, the hemorrhage, the discharge, the infiltration into the broad ligaments grow less. If operation is not possible there is at least amelioration.

Fibromyomata make up a large number of cases suitable for the Roentgen rays. No longer is the presence of a tumor per se an indication for operation. European clinics have long operated only for complications. In our country too this is becoming the general view. All non-complicating fibromyomata are proper subjects for Roentgenization. All complicated fibromyomata demand surgery. Dr. Frank of Chicago says his experience shows that 45 per cent require surgical treatment.

Kroenig & Gauss exclude all cases below the age 25 and the following:

1. Pedunculated submucous fibroids partly extruded from cervix.
2. Gangrenous or suppurating fibroids.
3. Combinations of fibroids and endometrial carcinoma.
4. Fibroids in which rapid growth, profuse menorrhagia, and unsuccessful Roentgen treatment makes the fear of sarcomatous degeneration likely.
5. Fibroids causing acute incarceration of the bladder.

Of the total number they treat 85 per cent with the Roentgen ray and claim a cure of hemorrhage in 100 per cent.

It is notorious that operation reveals many surprises. No matter how careful the diagnosis, cysts and other pathological conditions may exist and a larger number must be excluded. The doubtful ones should go to the gynecologist.

The systemic diseases causing uterine hemorrhage are fortunately few. The cause is recognized and treated. Anaemia scurvy, haemolytic icterus, chronic poisoning and acute infections have not to my knowledge been treated by Roentgen rays. Circulatory diseases, as a decompensating heart need only their special care. So great has been the

improvement in modern Roentgen therapy that some attention must be called to the technique of Roentgen ray administration.

The newer types of transformers and the Coolidge tube now in general use in America have made possible a new field of therapy. A Coolidge tube will work all day and deliver the same potential energy in rays. The possible depth of ovarian or tumor tissue seldom exceeds 10 c.m. It is possible to deliver at that depth sufficient Roentgen rays to destroy tumor or ovarian cells. Dr. Case of Chicago and Battle Creek demonstrated that he could give 1/20 x radiation through one port of entry. Through twenty ports of entry he gave 20/20x. If 300/500x are sufficient to destroy tissue at a depth of 10 c.m., the same amount must reach the depth of tissue if deeply situated tumor cells are to be destroyed. At a depth of 10 c.m. the intensity diminishes 1/7 to that of the surface. To obtain at a depth of 10 c.m. 500x we must give to the surface 3/500x. To do this the hardest rays must be used and they must be given through different ports. The skin is the only limitation. By using different ports of entry and by cross firing the results are obtained.

The expense of Roentgen ray treatment is no small consideration. If interest on the initial cost of apparatus, the depreciation in value, the expense of operation, and the fee for the Roentgenologist are considered, deep Roentgen therapy can not be administered for much less than a fair fee for surgery. In Roentgenization of ovaries alone where they respond rapidly the cost may be considerably less.

BIBLIOGRAPHY.

- Corscaden, J. A., *Am. Jr. of O.*, Jan., 1916.
 Frank, R. T., *S. G. O.*, Sept., 1916.
 Frank, R. T., *S. G. O.*, 1914 XIX 618.
 Schmits, S. G. O., June, 1916.
 Graves, *Gynecology*, August, 1916.
 Shearer, J. S., *Am. J. R.*, June, 1916.
 Case, J. T., *Am. J. R.*, Nov., 1915.
 Gaus, C. J., *Strahlen Therapic Abstract*, Vol. VI, p. 379.

Pruritis Ani.*

E. L. DeLanney, M. D., Omaha.

There is perhaps nothing in the practice of medicine that gives so much annoyance to a patient as a well developed case of pruritis ani. The constant itching destroys his rest and makes him self conscious. In severe cases the patient shows a tendency to the so called "neurasthenic" state.

Just a few complaints:

Case A. A young married woman with no children: "It makes no difference where I am or what I am doing, when these attacks come on the impulse to scratch is irresistable." These attacks are sudden, sharp pains around the anus followed by intense itching.

Case B. A young physician of active temperament complains of intense itching. "I have become so irritable that I cannot be civil to my patients."

Case C. A strong Irish laborer: "I just can't hold a job any longer." Complains of intense itching.

Case D. A young physician of quiet temperament, complains of intense itching during greater part of the night.

Pruritis ani is not a disease, it is a symptom, but a symptom of what is often the puzzling question. Pruritis ani may be caused by a number of conditions most of which, no doubt, begin in some form of infection. Small anal fissures are often a cause of pruritis, the pruritis existing even after the fissures have been closed. Whether the fissures form portals of entry for the streptococcus fecales which Dr. Murray claims is responsible for this distressing condition, or whether the fissures produce a hypersensitiveness of the numerous anal nerve filaments which we know to be abnormally sensitive in this particular region, we have not yet proved. In some of our cases an organism resembling the streptococcus of Murray was found while in others it could not be demonstrated. Again these fissures may heal over and form minute tubes or submucous fistulae which retain the anal discharge thus causing a constant irritation. Submucous fistulae sometimes exist without the evidence of fissures, seeming to come from the anal crypts which extend downward towards the skin, either following an ulceration or a tearing of the valve.

One such case, before mentioned as case

*Read before The Nebraska State Medical Association, Omaha, May, 1916.

B, was caused by just such a mucous fistula which was most difficult to find and which extended about two inches inside the bowel and about the same length under the skin toward the median raphe. From this tract a drop of thin glairy material would exude which either burrowed under or came in contact with the outside skin and set up an irritation. A drop of this exudate contained a pure culture of an organism which has not yet been classified. This case was very refractory and did not cease until the last vestige of the tract had been destroyed. This was hard to accomplish because of the extreme small caliber of the tract, and the fact that it extended into the bowel.

Cryptitis is at times the cause, sometimes primary, sometimes secondary to a skin infection, as, for instance, an eczema marginatum. When present it makes a cure almost impossible until each inflamed crypt has been removed. Such was case D, before mentioned, in which all the crypts were inflamed probably following a finger infection secondary to an eczema marginatum. In this case all the infected crypts had to be removed and the eczema treated before the case was cured.

Papillitis is another cause and a quite common one as in case A. This patient claimed she obtained relief by introducing the finger in the anus. In her case there was a large hypertrophied papilla about the size of a split pea which would come down and be grasped by the sphincter. This produced a biting sensation which was relieved by the introduction of a foreign substance in the anus thus pushing the sensitive tumor away from the muscle grasp. The repetition of this process finally caused a dermatitis around the anal skin and an intense itching.

In other instances the trouble seems to be primarily in the anal skin. In these cases, either by obliteration of evidences of the original causes or because it is primary as some authors claim, we find only a thickened skin. In certain cases the skin becomes almost as tough as a boy's heel. It is hard to believe how thick this can become unless one tries to infiltrate the skin with a hypodermic needle and notes the amount of pres-

sure required to push the needle through. In the case described as case C, we could find no evidence of cryptitis, fistula or papillar inflammation, but a thickening of the skin almost as tough as sole leather was thrown in rough folds all around the anal margin.

Rectal constipation, a proctitis with an acrid discharge, eczema marginatum, infection of hair follicles around the anus, infection of the skin by the finger nails when scratching for some slight dermal irritation, and retention of feces in a fold of skin, may all be causes of this affliction. In all cases it is well to make a routine examination of the urine as a few of these cases are of diabetic origin.

Enough has been said about the variety of causes to show that no one form of treatment could cure all cases. Every case has to be studied in itself.

Case A had been treated by stretching the rectum, pile plugs, salves, painting with carbolic acid, cold irritation, internal medication of all descriptions; all directed toward an unknown pathology. This case was finally cured in a few days by simply removing the inflamed hypertrophied papilla which was the cause of this irritation. The external dermatitis was treated by regulation of the bowels and Tincture Benzoin Compound applied twice daily.

Case B, previous treatment carbolic painting, resinol and every other kind of salve, novacaine suppositories, moist and dry dressing, cocaine injections and silver nitrate cauterization. This case was finally cured by removing the inflamed crypts and destroying a mucous fistula with an electric needle, though many attempts had to be made before this was finally accomplished. In this case we had a mucous fistula so fine as to be almost undiscernible but which discharged an irritating mucoid substance which when placed on any part of the anal skin produced intense itching.

Case C. This man with inimitable Irish brevity replied he had been "stretched, scorched and scraped." This case was cured by a modified Krouse operation which was not done so much to destroy the nerve endings as to cause absorption of the subdermal exudate which caused the thickening of the skin before described. In this case it was surprising to see how the thick skin became soft and pliable when finally healed.

Case D. He had tried a few things himself. The crypts were removed, a small annoying pile destroyed and the eczema treated with pure ichthyol applied about twice a week.

The above cases picked at random show the diversity of treatment required for these annoying conditions. They are the bug bear of this particular line of work and we undertake each case with trepidation. If the pathology of each case is studied, the etiology sought for carefully and suitable treatment given, a cure is usually possible. The treatment usually does not consist of painting with raw carbolic acid or having the anus stretched, or torn, procedures which, are seldom justifiable.

Of course if the trouble is due to pediculosis or pin worms, treatment appropriate will cure the case. Diet in some cases is another important aid. Neutralizing the urine of individuals in whom there is a highly acid urine with a tendency to nerve irritability is indicated in some cases.

So far we have had no experience with autogenous vaccines as recommended by Dr. Murray and we doubt their practicability except one finds a definite causative organism. We are trying to work out the bacteriology of these cases and hope at some future date to report results.

Four Cases of Acute Infantile Paralysis.

Selected Case Reports from the Clinic of the
Nebraska Orthopedic Hospital
February, 1917.

H. Winnett Orr, M. D., F. A. C. S., Lincoln.

Case No. 7—F. T. developed acute anterior poliomyelitis or infantile paralysis the first week in July, 1916, and the writer saw him at his home a few squares from the hospital on the eighth day of his illness. He had a temperature of 101°, a fairly rapid pulse and with the exception of his face and neck muscles, was totally paralyzed. He could not lift either hand or foot from the bed or make any effort to turn himself, whatever.

Dr. Finney and Dr. Chapman of Lincoln, in consultation with whom he was seen, at once, agreed to his removal to the hospital where he was placed in the quarantine ward on July 10. He remained in quarantine until July 27 during which period he recovered from most of his acute symptoms though he continued to have neuritic pains especially of the lower extremities and was tender upon motion.

About July 20 plaster splints were put on from the hips to the toes and in this way relief from irritation secured and the feet and knees protected against contraction. Upon release from the quarantine ward new plaster casts were applied. These have been kept on with occasional changes ever since.

During this month (February, 1917) leg braces have been substituted for the casts. No other therapeutic measures have been resorted to. He has had the bathing and rubbing which the ordinary hospital patient receives. He has had no massage, no electricity, nor any re-educational exercises, whatever. His treatment has consisted wholly of plaster splint protection and of long confinement in bed. His condition, therefore, presents a particularly interesting picture.

He is now walking very well and the use of his arms and hands is practically entirely restored. The prospects are that within the two years during which these patients make progress spontaneously he will be practically well. There is absolutely no contracture deformity although he still has a few weak muscle groups especially in the lower extremities. Protection by splints or braces will be continued as long as necessary. At the end of two years, if there are any weak muscle groups remaining, recourse may be had to arthrodesis, tendon transference, tendon fixation or what ever else may be necessary.

Case No. 8—E. M. was admitted to the hospital on August 4, 1916. She was in the midst of an attack of acute infantile paralysis, with partial loss of power in the right arm. She was placed in the quarantine ward where she remained until August 25. She was kept in bed most of the time until October. By that time power had returned to most of the muscles of the right arm except the deltoid group. She was still unable to lift the arm away from the body.

On October 28 a plaster paris jacket with an arm support which held the arm well over the head was applied. This is the plan first suggested by Dr. David Silver of Pittsburg and one which we have frequently used. It accomplishes the one thing necessary for all of these patients, namely, a complete relaxation of the affected muscles or muscle groups. Relaxation of the parts being over stretched is the one thing absolutely necessary to recovery. This is because ultimate paralysis is usually due not to the permanent loss of nerve supply as is some times supposed but to the fact that when damaged nerve supply has been restored either by recovery from the acute attack or by the regeneration of nerve elements, the muscles formerly supplied by the regenerated nerves are so over stretched and atrophied that they fail to respond to nerve impulses.

This patient had the plaster paris arm support for about a month after which a body brace with an arm piece which carried the arm over the head was applied. This she has continued to wear since. Even at the time of the removal of the jacket considerable improvement in the use of the arm was manifested. At the present time her condition is reported to be steadily improving. The brace must be worn for some months yet as, with adequate protection, she will continue to gain for a year or more.

Case No. 9—H. L. Was brought to the hospital on October 12 from a neighboring town with acute

infantile paralysis. His acute symptoms except leg pains had already subsided, although he had been sick only 4 or 5 days. The left leg was entirely paralyzed and the reflexes absent. He complained of pain over the entire left extremity and cried out when the limb was moved.

He was kept in the quarantine ward until Nov. 13, 1916.

On Jan. 11 his first leg cast was applied, all acute symptoms having by that time subsided. A cast was reapplied February 15. There is still complete loss of power of the tibialis anticus group and to some extent of the quadriceps extensor group. With the cast off there is a decided tendency to drop foot but on account of the cast having been faithfully worn no contracture deformity whatever has occurred. He stands well and will walk without difficulty in cast or brace until full recovery has been secured. This condition is in striking contrast, to most of the patients received here with tibialis anticus paralysis. Nearly all come in with extreme drop foot and fixed contracture of the achilles group—so that tenotomy or tenoplasty are necessary before the foot can be brought to a right angle with the leg.

Case No. 10—M. C. Was brought to the hospital from Crete, Nebraska, referred by Dr. Huffman on about the 6th day of his sickness with acute infantile paralysis. He arrived on December 1 and was kept in quarantine until December 23. He had paralysis of a mild degree of the left arm and leg with the usual symptoms of pain of the affected extremities. His temperature upon admission was normal.

At the time of being released from quarantine on Dec. 23 he had practically recovered and when discharged from the hospital on January 14 there was scarcely a trace of weakness remaining.

This patient as well as the other three it seems to us illustrates the fundamental importance of mechanical protection, or ideal rest, as a treatment of this condition. This has been emphasized of course many times but is still too lightly regarded by many. In the treatment of these patients Dr. A. B. Judson of New York City many years ago argued that the majority of deformities following infantile paralysis were found in the lower extremities not because the lower extremities were more violently affected but because the weakened lower extremities were called upon to perform laborious functions while still in a weak condition, while the arms were only being used for light work while they acquired ability to do more. He contended that in order to secure as good results for the lower extremities as are usually obtained for upper extremities a much longer period of treatment in recumbency was necessary. A rather extensive observation of patients in the acute stage and in all stages afterwards tends to confirm us in a similar view.

A Case of Pituitary Disorder.

F. W. Scott, M. D., Lodge Pole.

On July 7, 1914, the parents of Maude H. brought her to my office for consultation. They were seeking the cause of her vomiting.

Maud H. age 13 years, German parentage, weight 65 pounds, height 4 feet 10 inches. General appearance, slightly anemic.

Family History—One cousin on the mother's side is a microcephalic.

Past History—Negative.

Present Trouble—Has been vomiting for a month, otherwise feels well.

Menstrual History—Not established.

Examination—The child was extremely nervous, moving around the office continually. The eyes appeared to be abnormally prominent. I questioned the mother to ascertain if she had noticed the eyes becoming more prominent as the child grew older. Not noticed. The heart was within normal boundaries, pulse 85. No muscular tremor present. It appeared to me that the thyroid was slightly enlarged, but mother had not noticed this. Temperature 98.6. Mucous membrane of lips pale. Child had a voracious appetite, eating all her own meals and a great amount off the plates of the other children. Also ate between meals whenever food could be obtained. After eating would invariably vomit then feel better. Child desired to eat again immediately after vomiting. In school she was very nervous, continually on the move, chewed her pencils.

I could find nothing in the stomach to cause the vomiting. I put her on iron for the anemia and in order to facilitate further observation. This did not suit the parents so the case was taken from me temporarily.

On February 15, 1915, I was again asked to take the case. My former patient was now six feet tall, the head enormously enlarged and leontiasis of the jaw had occurred. The face reminded me of a giant with coarse and massive features. The frontoparietal articulation had separated and the frontal bone was half an inch above the parietal. Exophthalmos was present and the thyroid was enlarged. I could not percuss the thymus. The skin was shiny and soft; when pinched up it was slow to smooth out. The patient was unconscious with badly swollen tongue. On examining the body one was struck by the apparently plump condition, considering the length of time the patient had been confined in bed. The thorax showed no sign of mammary development and resembled the male type. No axillary or pubic hair. The heart was enlarged one inch in all directions. Pulse 160, and weak. Temperature 104 F per mouth. No spots on the body to show hyperactivity of the adrenals. Abdomen felt doughy. Bowels were sluggish, control of the sphincters had been lost for four months. Fingers were long and tapering. Examination of the genital tract showed an infantile development with an acid discharge from

the uterus. This produced a severe excoriation over the back. Control over the legs was gone, but sensation was present. Knee jerk and the Babinski were exaggerated.

Diagnosis—Pituitary tumor with manifestations of hyperpituitism affecting probably all endocrine organs.

Treatment—Ice bag over the heart, which quieted down in forty-eight hours to 86 per minute. The enlargement decreased and in a week heart was within normal bounds. The temperature returned to normal. I put the patient on ergot and quinine as recommended in Forchiemi for the hyperthyroidism and pituitrin for the effect on the pituitary gland. I started with 15 minims of pituitrin by hypo three times a day. This was gradually increased to an ampule three times a day. Patient improved to such an extent that she was conscious, able to talk, and flex the knees and thighs. Brisk catharsis by means of calomel removed the doughy mass and reduced the elevation of the frontal bone above the parietal. This elevation always returned whenever the bowels did not move thoroughly.

As the girl improved it became evident that the fields of vision were markedly reduced, how much I do not know. As the thyroid element did not improve on my treatment I changed to Beebe's serum with better results.

I had hopes now of getting the patient in shape to stand a trip to Omaha where the case could be carefully worked up and a sub-temporal decompression done, but the intense strain on the myocardium now began to assert itself. Odema occurred, the pulse and temperature rose and a passive congestion of the lungs ensued. To complicate matters bedsores developed where the acid vaginal discharge continually ran over the buttock. Large swellings appeared over the great trochanters which on opening discharged a black, bloody material. These did not heal. The circulation picked up temporarily with digitalis but in two weeks the patient died.

A Case of Trichomonad Infection.

George P. Shidler, M. D., York.

In connection with our gastric work there have been enough parasitic cases to warrant the practitioner to be on his guard whenever a case of chronic diarrhoea presents itself. In this day when vegetables from the tropics are so quickly transported to distant markets the possibility of parasitic infections assumes warranted importance. Several cases of parasitic infection of unusual interest have come under our notice.

The question of intestinal parasites especially in a temperate climate is rather a new one and the scientific nomenclature and classification of parasites has frightened the average man into inattention and inactivity. The fact remains that we must consider the stool examination seriously. If unwilling to take

the trouble to examine the feces we will often overlook an opportunity to make an exact diagnosis.

The method of stool examination is that advocated by Sanford and Smithies. The patient is instructed to take one-half to one ounce of Epsom salts in the morning before breakfast and then report to the laboratory for examination. Feces are collected on a warm plate free from urine and examined on a warm stage to keep the parasites alive during the examination. A piece of copper about six inches long and one inch wide with a hole punched at one end will do nicely. A small alcohol or gas flame at the distal end will keep the temperature satisfactory. It has been our experience that unless the parasites are present in sufficient number to attract ordinary attention there is usually little danger of their being harmful to the individual. This seems to dispose of the question that all parasites are pathological.

The *Trichomonas* is a small motile organism about 16 mm long and 4 mm wide at its greatest diameter, shaped like a tennis racket with several little tails or flagella, three or four in number, where the handle should be. In addition there is an undulating membrane commencing at the anterior extremity and extending obliquely backward. The nucleus is situated anteriorly and sometimes vacuoles will be seen behind the nucleus. If present in sufficient number to suggest pathology these organisms should be readily recognized moving about in the fecal debris. They lose their morphology when dead. Their rapid movement will arrest the investigator's attention as he looks through the microscope. An oil immersion lens should be used. The clinical symptoms of a trichomonad infection are as follows:

Intermittent diarrhoea, at times with blood and mucus, and even alternating with constipation.

Abdominal pains of indefinite source although sometimes well localized over the splenic or hepatic flexures or over the caecum.

General weakness, slight anaemia; a symptom complex suggesting nothing definite and often wrongly diagnosed as "neurasthenia" or "hypochondria."

HISTORY.

Female, age 57, married, four children. Native of Illinois. Housewife. Family history negative. Lived in Nebraska 1892 to 1894; Texas 1894 to 1896; Nebraska 1896 to 1908 then Colorado 1908 to 1913. Had measles, whooping cough and smallpox.

In 1896 returning from Texas by wagon she stopped at a small shallow stream in northern Texas, and took a drink of water. That night she had severe abdominal cramps and was ill for four weeks with diarrhoea and fever which was diagnosed as typhoid. She vomited continuously and became very weak. She had chronic diarrhoea for seven years. Finally it became less severe but each summer always brought an exacerbation. Pain would begin in the stomach with nausea and vomiting, sometimes

vomiting without pain. Once she became unconscious and collapsed with a severe pain in the bowels. Attacks always caused loss of weight from five to ten pounds. When she left Texas she weighed 170 pounds and in 1914 about 125 pounds.

The first time I saw her she had been in bed six weeks and gave this additional history: Her stomach trouble was in spells. She became "sick" without much pain. She had had forty or fifty attacks. No food agreed with her and milk curdled. She had colicky pains in the intestines but never in the stomach. Castor oil or high enemas sometimes relieved the pain. Always better after vomiting, food would come first and then a watery bile. Vomiting was easy at first but later with much straining raising small quantities of food. Her bowels since this attack began have been moving three to four times daily.

General examination showed a frail anemic woman barely able to move about in bed. Mentally depressed, tender over the region of the colon. Slight heart murmur, probably hemic in origin. Lungs negative, spleen negative, urine negative for albumen and sugar.

Stool examination showed tricomonads about one to two in every field of the one-twelfth. The following day a stomach analysis was made showing absence of free HCl and the presence of large numbers of tricomonads.

The treatment was colonic injections of kerosene, administration of emetine hydrochloride subcutaneously, hydrochloric acid per oram after meals, and albuminate of iron in water before meals.

Under this treatment the patient was soon able to leave her bed. In a few weeks parasites, on repeated examinations, were absent and the woman was able to do her own housework. However, there remained the melancholic condition and the chronic invalidism. Search for health and consequent poverty caused her to take mental science and she became insane about six months later. She was confined in a private institution where repeated examinations failed to demonstrate parasites.

Gastric Carcinoma.

Roscoe L. Smith, M. D., Lincoln.

Male, age 55. Referred by Dr. J. M. Mayhew with diagnosis of advanced gastric carcinoma. Roentgen examination advised to corroborate diagnosis and demonstrate amount of involvement.

Present symptoms: Loss of thirty pounds weight during last six months. Complains of pain in epigastrium, distention and distress after eating small quantities of food. Vomiting frequent, coffee ground type; loss of muscular endurance. Stools show macroscopic and microscopic blood.

Stomach contents:

Small amount of fluid returned.
Blood as shown by Webber Test.

Lactic acid.

Absence of hydrochloric acid.

Small shreds aspirated were found on section to be medullary carcinoma.

Microscopic examination of stomach contents showed numerous red blood cells. Food showed no digestive changes.

This is an advanced case of carcinoma of the cardia, typical history of carcinoma. One does not require an X-ray or anything but inspection to diagnose a carcinoma of this advanced type, nor does it do the patient much good. If this patient could have been X-rayed ten months prior to the time our examination was made there might have been some chance of a cure.

The Roentgen examination offers us the best method, excepting exploratory operations, for the early diagnosis of cancer. It is the most direct of all methods of examination, and the findings are usually exact.



Examination of stomach contents for errors in secretion and also the stools for occult blood, and a careful differential blood count, are all very valuable and should never be omitted.

The differentiating point between ulcer and cancer, from a Roentgen point of view, is the marked invasion of the stomach by tumor tissue.

The character and amount of deformity one sees in a plate, if correctly interpreted, makes a positive diagnosis and a correct prognosis possible.

There are exceptions to this as to all good things, and syphilis is usually the disease that causes these exceptions. Syphilitic granulomata may cause deformities similar to cancer, and for this reason we believe it is wise to differentiate by the Wasserman test.

- No. 1. Dilated Duodenum.
- No. 2. Dilated Duodenal Cap.
- No. 3. Pylorus.
- No. 4. Antrum.
- No. 5. Deformity due to carcinoma.
- No. 6. Marked constriction and deformity due to carcinoma involving body of stomach.
- No. 7. Bismuth in small intestine.

Perforation of Gall-Bladder.

R. D. Schrock, M. D., Omaha.

This case is reported to show the interrelation of stomach and gall-bladder disease, also as an example of perforation of the gall-bladder and difficulties in differential diagnosis.

History—Woman, 63 years, widow.

Chief complaints—Pain near umbilicus, dyspnoea, loss of appetite, frequent nausea.

Present condition—For the past month patient has had fairly constant dull pain just to the right of the umbilicus, extending downward into the right lower quadrant and into the lumbar region of the back, and on rare occasions radiating up into the right scapular region. No acute sharp attacks; no chills; three or four evenings she has had some fever. The pain is steady, more "pulling" in character than cramp like. Accompanied by slight nausea but no vomiting, some cructations of gas. Distress is greater one to two hours after eating and especially when meat is taken.

Previous History—Occasional attacks similar to above for past twenty years. Never jaundiced. Chronic "indigestion." Chronic constipation. "Heart trouble" for many years.

Menstrual History—Menopause more than ten years ago. Six children, youngest twenty-two. For past fifteen years "falling of the womb."

Essentials of Physical Examination—General condition poor, evidence of some loss of weight, but not cachetic; definite myocardial change, pulse irregular in both rate and strength. Abdominal wall flabby. Lower border of liver in midclavicular line one inch above the umbilicus. Between this point and midline there is a tender mass, seemingly the size of a doubled fist, hard and suggesting a roughened surface, deeply attached and slightly movable from side to side. Moderate splachnoptosis and procidentia of second degree.

Provisional Diagnosis—Cholelithiasis, possibly new growth.

One week later patient had an acute febrile attack; temperature 99 to 103; pleuritic pains in left side of chest, slight cough. Chest signs were those of a mild bronchitis. There was no consolidation. The abdominal pain was more acute but never colicky or "cutting" in character. Tumor not changed in size but more tender. Diagnosis was made of acute cholecystitis with calculus in the common duct. This, however, did not explain the pre-existing tumor. Under conservative measures, the attack subsided in five days. There had been no jaundice; stools showed bile pigments, no blood, and there was bile in the urine.

Owing to age, long gastric history and slight loss of weight, diagnosis of new growth had to be excluded. One week after acute attack, gastric analysis showed marked hypo-acidity with no free acid; a second test meal six days later, showed continued hypo-acidity but less marked and free hydrochloric of 12, no blood, etc.

X-ray examination by Drs. Tyler and Prince.

Mrs. N. L. W. The stomach is normal in shape, size and position. One third full at five hours. There is a mass pressing against the right side of the duodenum. The colon is freely movable and normal in contour but pushed toward the left side by the liver and mass in the right side. Conclusions: Large gall-bladder, probably full of stones.

Operation was advised. The heart was responding well to digitalis. A preliminary twenty-four hour alkaline treatment was given, with large intake of water. There was a faint trace of albumin, but the twenty-four hour output was above 1500 cc.

Operation, under novocain and ether, disclosed a mass of omental adhesions about the lower surface of a large, congested liver; on separating adhesions an abscess pocket was disclosed containing about a dozen small tetrahedral stones and a dram of pus; the gallbladder was contracted, thick walled and contained four faceted stones with a fifth one, rounded, size of a pigeon's egg, impacted in the neck of the cystic duct. Three quarters of the gall-bladder was removed, tube inserted into the cystic duct and cigarette drain into gall-bladder fossa. Convalescence smooth, tube removed on the seventh day and drainage entirely stopped on the twenty-second day.

Microscopic examination of gall-bladder shows only chronic inflammation.

Two interesting questions arise: Was the perforation a slow process during the month preceding the acute febrile attack? Or had the adhesions formed about a chronic gall-bladder and was perforation a late event during the recent attack? The tumor before the acute attack, the density of the adhesions and the very small amount of pus seem to point to the first condition.

The Edward L. Trudeau Foundation for Research and Teaching in Tuberculosis.

An endowment fund has been created as a memorial to the late Dr. Edward L. Trudeau, to perpetuate his name and to continue the scientific investigations that were a life-long interest of the American pioneer in tuberculosis research. The income is to be devoted to the following purposes:

1. To maintain laboratories and carry on research into the nature, causes and treatment of tuberculosis.

2. To maintain regular courses of instruction for physicians and others in the most advanced knowledge of the above subject, under the name of the Trudeau School of Tuberculosis.

3. To offer young physicians the opportunity to engage in research work, while undergoing treatment for the disease, through the establishment of fellowships.

The trustees of the Trudeau Sanatorium are to administer this fund, with the aid of an advisory council of distinguished investigators and teachers, consisting of Professor William H. Welch and Professor Theodore C. Janeway, of Johns Hopkins University; Dr. Hermann M. Biggs, New York State commissioner of health; Dr. William H. Park, director of laboratories, New York City Health Department; Professor Theobald Smith, director of the department of animal pathology, Rockefeller Institute; Professor Warfield T. Longcope, Columbia University; Professor Thomas McCrae, Jefferson Medical College, Philadelphia, Pa.; Dr. John H. Lowman,

Western Reserve University, Cleveland, Ohio, and Dr. Vincent Y. Bowditch, of Boston.

The plans for researches in tuberculosis are comprehensive in their scope, including the fields of clinical and laboratory experimentation. The scientific study and treatment of this disease under conditions favorable for the continued observation of patients with the best facilities obtainable, will be encouraged in every way. Clinical and laboratory work will be carried on under experienced direction, with the aim of enlisting the interest of physicians and others in the solution of many problems awaiting study.

The facilities for research are as follows:

1. The Trudeau Sanatorium Medical Department (150 beds), including the Infirmary.

(a) The Clinical Laboratory.

(b) The Research Laboratory.

(c) The X-ray Laboratory.

(d) The Statistical Department.

2. The Saranac Laboratory. (In the village of Saranac Lake).

3. By cooperation with the various tuberculosis sanatoria and hospitals in the vicinity, clinical and laboratory facilities are available in the following institutions:

(a) The State Sanatorium, Ray Brook, 350 beds.

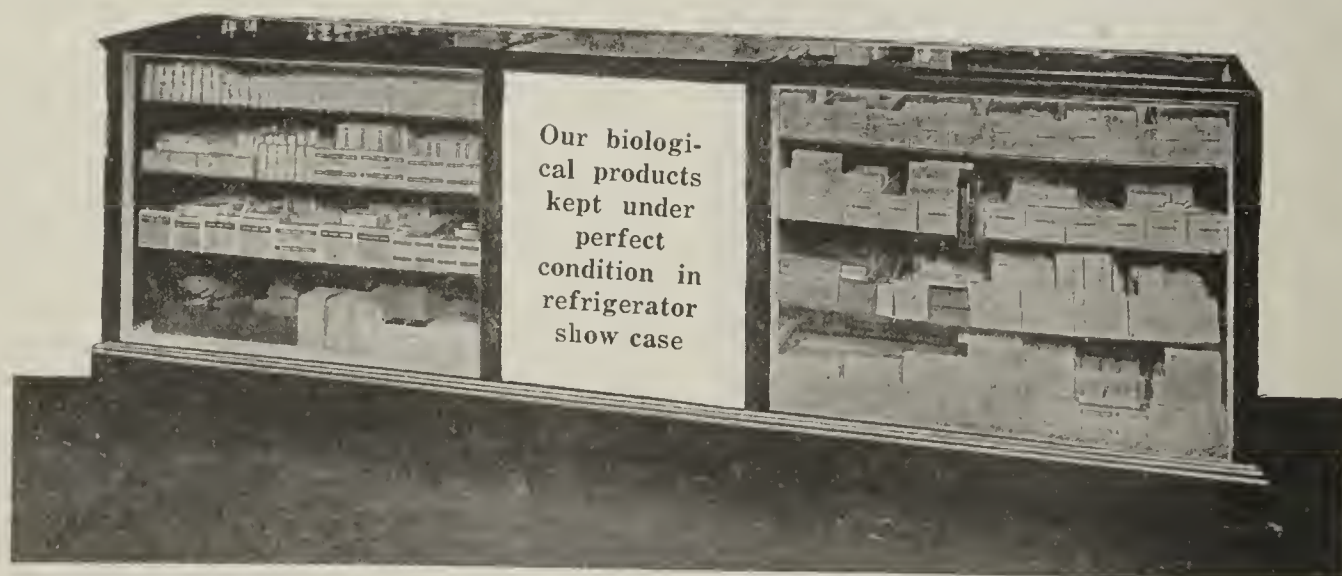
(b) The Stony Wold Sanatorium, 150 beds.

(c) The Gabriels Sanatorium, 70 beds.

(d) The Reception Hospital, 20 beds.

(e) The Saint Mary's Hospital, 20 beds.

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STATE MEDICAL MEETING—LINCOLN, MAY 8-9-10, 1917.

Official Program

Tuesday Afternoon 1:30 p. m.

Forty-Ninth Annual Session Nebraska State Medical
Association

MEDICAL SECTION.

Homer Davis, Genoa, Chairman.

Nebraska State Medical Association
May 8-9-10, 1917.

Meeting at Lincoln Hotel, Lincoln.
Tuesday Afternoon 1:30 p. m.

SURGICAL SECTION

H. M. Hepperlen, Beatrice, Chairman.

1. Address by Chairman of Surgical Section—Efficient Surgery.
2. Acute Suppurative Osteomyelitis—S. S. Wilson, Nebraska City.
3. Report of Five Cases of Intracranial Pressure with Decompression Results—H. B. Lemere, Omaha.
4. Surgery of the Transverse Mesocolon—Clyde A. Roeder, Omaha.
5. Ludwig's Angina—E. R. Hirsch, Superior.

1. New Classification of Nervous Diseases—G. Alexander Young, Omaha.
2. Dementias of the Young—B. F. Bailey, Lincoln.
3. Nervous States—G. W. Dishong, Omaha.
4. Epilepsy—B. F. Williams, Lincoln.
5. The Theory of Psychic Causation in Insanity—L. B. Pillsbury, Lincoln.
6. Society's Duty to Mentally Deficient Children—C. G. Griffith, Beatrice.
7. Arterio Sclerosis and Hypertensions from the Standpoint of the General Practitioner—J. C. Waddell, Pawnee City.
8. Cardiac Arrhythmia—A. K. Detwiler, Omaha.
9. Icterus—A. Sachs, Omaha.
10. Practical Psychotherapy—Chas. H. Arnold, Lincoln.

Wednesday Forenoon 9:30 a. m.

SURGICAL SECTION.

M. S. Moore, Gothenburg, Presiding.

6. Symposium on Gall Bladder Disease.
 - (a) Cholecystostomy—B. R. McGrath, Grand Island.
Abst.—Indications. Changes resulting. Prognosis.
 - (b) Cholecystectomy—A. F. Jonas, Omaha.
Abst.—Indications. Changes produced. Prognosis and Technique.
 - (c) Discussion—C. A. Roeder, Omaha.
7. Blood Transfusion in Surgical Conditions—A. P. Condon, Omaha.
Abst.—
 - (a) Condition where transfusion is valuable.
 - (b) Comparison of direct and indirect methods.
 - (c) The placing of donor and recipient into groups.
 - (d) Technique.
 Discussion opened by J. S. Welch, Lincoln.
8. Symposium—Urological Diagnosis.
 - (a) Resume of present views of Kidney Infections—C. C. Johnson, Creighton.
 - (b) Cystoscopy and Pyelography—C. Emerson, Lincoln.
 - (c) Functional Diagnosis—Geo. W. Covey, Lincoln.
 Discussion—S. A. Campbell, Tilden.
9. Prostatectomy—O. H. Hahn, Hastings.
10. Prostatorrhea and Vesiculitis—J. J. Snipes, Lincoln.
11. Acute Gonorrheal Urethritis—H. R. Brown, Beatrice.

Wednesday Forenoon 9:30 a. m.

MEDICAL SECTION.

Porter Dodson, Wilber, Presiding.

11. Focal Infection, its Relation to Remote Local and Systemic Conditions—A. N. B. Le Moine, Nelson.
12. A few Practical Points in the Clinical Interpretation of the Wasserman Reaction—M. G. Wohl, Omaha.

Abst.—In surgical conditions if a lesion is accessible, excision of a piece of tissue for diagnosis is more reliable than the Wasserman reaction.

If a lesion is inaccessible the Wasserman reaction will point to the condition being syphilitic, only, when the reaction is strongly positive.

Report of cases that illustrate this point.

The value of the Wasserman in surgical conditions of the stomach illustrated by cases.

How to interpret a negative Wasserman and the value of a provocative.

The value of the Wasserman in pulmonary lesions as illustrated by cases.

Conclusion.

13. Intraspinous Medication in Syphilis—Ernest Kelley, Omaha.
14. Popular Consideration of Syphilis—A Plea—F. E. Coulter, Omaha.
15. Late Hereditary Syphilis—H. B. Hamilton, Omaha.
16. Clinical Significance of Indicanuria—H. M. McClanahan, Omaha.
17. Infantile Convulsions and Allied Conditions—Newell Jones, Omaha.
18. Temperature in Children—F. T. Hamilton, Friend.
19. Advantages and Disadvantages of the Country Doctor—G. W. Sullivan, St. Edwards.
20. Medical Treatment of Gastric Ulcer—J. S. Bell, York.

GENERAL SESSION.

Wednesday Afternoon 1:30 p. m.

President W. F. Milroy, Presiding; assisted by Vice Presidents Porter F. Dodson and M. S. Moore.

Address of Welcome—Governor Keith Neville.

Response—President W. F. Milroy.

President's Address—W. F. Milroy, Omaha.

12. Symposium on Military Surgery.
 - (a) Organization of the Medical Department U. S. Army, for field service in time of war—Colonel J. M. Banister, U. S. Army, retired, Omaha.
Abst.—Personnel; equipment; scheme of service on the firing line; first dressing stations; field hospitals; rest hospitals; base hospitals; relations to the Red Cross Society.
 - (b) First Aid to the Injured—J. T. Tucker, Long Pine.
Abst.—Improvised dressings, splints, litters.
 - (c) Lessons Taught by the European Experience in the Present War—J. E. Summers, Omaha.
Abst.—Effects of modern projectiles impelled by high explosives; infection by such projectiles; psychology of the wounded; gas infection; X-ray as furnishing prognosis in such infections, and indications for treatment; tetanus infection; antiseptic irrigation; amputations versus conservative treatment in wounds of extremities; trench feet.

Discussion opened by D. B. Steenberg, Aurora; M. S. Moore, Gothenburg.

Thursday Forenoon 9:30 a. m.

SURGICAL SECTION.

H. M. Hepperlen, Chairman.

GYNECOLOGY:

13. Symposium on Plastic Surgery of Pelvic Outlet.
 - (a) Cystocele. Perineal damage and Rectocele. P. H. Salter, Norfolk.
 - (b) Prolapse of Uterus—A. I. McKinnon, Lincoln.

(c) Fistulae About the Pelvic Outlet—

F. A. Long, Madison.

14. Symposium on Uterine Hemorrhage.

(a) Etiological Physiology, Anatomy and Pathology—C. C. Hickman, Beaver Crossing.

(b) Surgical Treatment—Palmer Findley, Omaha.

(c) Roentgen Ray Treatment—A. F. Tyler, Omaha.

Discussion opened by E. W. Rowe, Lincoln.

Thursday Forenoon 9:30 a. m.

MEDICAL SECTION.

Homer Davis, Chairman.

21. Laryngeal Diphtheria—F. G. Dewey, Coleridge.

22. The Tonsil in General Diseases and its Treatment by the General Practitioner—Robert T. Jones, Edgar.

23. The Conservation of Vision and Hearing. Medical Inspection by the Teacher—E. C. Hayman, Lincoln.

24. Effect of Sinus Disease on the Eyes—Frederick F. Teal, Lincoln.

25. A New Appreciation of Mastoid Operations—J. J. Hompes, Lincoln.

26. X-ray Treatment of Epithelioma, Lupus and other Skin Diseases from the Standpoint of the General Practitioner—R. G. Rich, David City.

27. Protozoa Infecting Intestinal Canal—E. L. DeLanney, Omaha.

Abst.—A review of most common protozoa causing diarrheal symptoms with some of their harmless prototypes.

They are much more common than usually supposed.

Lantern slides showing drawings and microphotographs of organisms and charts showing differential diagnosis.

Thursday Afternoon 1:30 p. m.

SURGICAL SECTION.

H. M. Hepperlen, Chairman.

15. Puerperal Sepsis—I. C. Munger, Cozad.

A plea for less exposure of women to sepsis and acute infections by her medicinal attendant.

16. The year's advancement in Obstetrical Anaesthesia—J. A. Smith, Lincoln.

Thursday Afternoon 1:30 p. m.

MEDICAL SESSION.

Homer Davis, Chairman.

28. Diet in Health and Disease—J. C. Hay, Laurel.

29. Obstipation—Border Line Cases—J. M. Mayhew, Lincoln.

30. Laxatives—A Protest—M. L. Hildreth, Lyons.

31. Service in the Practice of Medicine—A. E. Hedlund, Dalton.

Blood Transfusion.

Indications, Results and Technique.

J. S. Welch, M. D., F. A. C. S., Lincoln.

To find a satisfactory substitute for greatly needed body fluids, tissues and organs in the human body has long been a live problem. Experimental surgery has solved a portion of the task after much investigation.

Skin is successfully transplanted over great areas. Bone is grafted from man to man and its growing qualities transferred to recipient with the graft. Tendons are frequently transplanted with nearly normal retention of function. Non-absorbable materials are substituted for tendons and permanently buried in the tissues with fair success. Ovarian and thyroid gland tissues are substituted where needed, with a fair but partial transient functional result. Even kidneys have been transplanted in dogs, monkeys and apes with some slight success. We have transplanted a kidney in a bull dog and gotten a slight return of circulation with the secretion of a few drops of urine. Unger of Berlin had an ape which lived weeks after a kidney transplant, and during this time this kidney secreted a slight amount of urine. Latterly interest has centered most in the substitution of blood from a carefully selected healthy donor to a needy patient.

Indications.

Such a substitution or transfusion of blood finds its indications in the following conditions.

No. 1. Hemorrhage. Whenever a severe bleeding has occurred externally, or internally, the careful transfusion of blood from a properly selected donor is practically without danger (Lindeman), and becomes indicated. The urgency of the indication depends upon the degree and characteristics of the anaemia. Sweets' laboratory at University of Pennsylvania put one million reds and 20% hemaglobin as an absolute indication. Above one and a half millions usually not an absolute indication, but if shock and dyspnoea accompany, it is advisable and may be obligatory.

If there are two million reds and the coagulation time is delayed, the indication is nearly absolute.

It should be remembered that such indications as post partum bleedings are more urgent than hemorrhage from a severed vessel properly ligated. The difference depending upon the completeness of the control of bleeding.

No. 2. Shock. Pure shock is not an indication for transfusion. It is a distinct contra indication. Where the nervous mechanism of the heart and vessels is interfered with by anaesthesia, for example, the circulatory load is already over great and transfusion would certainly add to it. Shock from a blow on the head is a contra indication. It is due first to trauma of cerebral cells and then the ensuing edema. Here also transfusion would only add to the heart's difficulties. Certain uncommon conditions of shock attributed to insufficient adrenal action would be made worse by the addition of more blood. It is in shock accompanying and produced by hemorrhage that transfusion is indicated. Sweet believes that even in these cases salt solution at first is better because the immediate difficulty is one of too little fluid in the blood vessels to carry the solids vis the corpuscles. In most instances this corresponds to practical conditions, for salt solution is ever at hand, while hours must usually be had to correctly arrange for a blood transfusion. The rally from severe shock brought about by salt infusion is transient however, and the prompt subsequent use of blood has a marked indication.

No. 3. Anaemia. There are a number of diseases where secondary anaemia arises, in which transfusion is indicated. This is not because it directly cures the trouble, as in severe traumatic hemorrhages, but because it affords transient and supplementing help.

Anaemia, due to a bleeding gastro-enterostomy should be transfused. Such cases should be then promptly re-opened and the bleeding point controlled.

Similar pre-operative indications are found in severe anaemics with essential hemorrhage of the kidney or papilloma of the bladder and various malignancies. The transfusion in no way changes the malignancy, but it is a preliminary preparatory measure. In acute sepsis, typhoid, scarlet fever, cholera, etc., it helps the anaemia, but is of questionable direct value. Peterson and others believe they have evidence of antitoxic and bactericidal action, but Sweet could note no effect in five cases of acute sepsis.

If used in bleeding typhoid and TB ulcers, small amounts, which do not increase blood pressure, are indicated. Also in pulmonary hemorrhage it should not be used to the degree of increasing blood pressure, if at all. It is contra indicated in cirrhosis of the liver with bleeding esophageal veins.

No. 4. Blood Discrasias. Because transfusion lessens the coagulation time it finds an indication in haemophilia. The help is only temporary but since the tendency in these cases to bleed goes somewhat in waves normally, transfusion may help over a wave if the patient is so unfortunate as to be traumatized at this unfavorable period of the cycle. Moreover, frequent transfusions have no contra indications.

Pernicious anaemias are benefitted by having blood supplied and by stimulating the blood making or-

gans. It does not alter the blood destroying processes of the spleen. Few cases of pernicious anaemia are cured. Sweet reports one living after six years, where many transfusions have been used. It is a good preliminary to splenectomy in Pernicious Anemia and Banti's disease.

No. 5. Hemorrhage in the New Born. Transfusion is reported with favor in these cases if used promptly. Death may occur from previous hemorrhages in the liver, lungs, etc., even after transfusion has seemed to rescue these cases. Very small amounts only are advised. Dilation of the right heart and pulmonary congestion are easily produced.

No. 6. Poisonings. In illuminating gas poisoning the stable hemoglobin compound formed is difficult to eliminate. By first bleeding and then transfusing one renders a double service. New R B C's are provided and the bone marrow is stimulated to greater activity. It seems of no value in the metal poisoning, such as lead, arsenic and mercury.

RESULT OF TRANSFUSION.

Several things happen when blood is transfused. The volume of blood in circulation is increased and if the heart is not thereby overloaded, the blood pressure will rise. This is more lasting than when salt solution is used because it does not so promptly leave the circulation.

The hemoglobin and the red cells are increased. These are fairly permanent in cases where rapid blood destruction is not going on.

The coagulation time is decreased, especially in hemophiliacs. Here the prothrombin seems qualitatively off normal and the addition of a little from another individual seems to activate it with a rapid production of thrombin and quicker coagulation.

Blood production is stimulated. A few days after transfusion a shower of nucleated premature red cells appear in the blood stream as evidence of this condition.

Transfusion is thought to check infections. Peterson claims that by control of experiments on animals he can demonstrate this. It is much to be hoped that this phase of transfusion work can be made practical. Herein lies a great field of usefulness. Bactericidal and antitoxic elements may be transferred with transfused blood where the donor has been previously inoculated and cured or only immunized by vaccination. How far

this may be carried is as yet very problematical.

A reaction consisting of fever, chill, sometimes nausea and vomiting, polyuria, and less often casts and albumen, in the urine may result. With the correct control of agglutinins and hemolysis in donor and recipient, most of this has disappeared. Satterlee and Hooker believe that many such (toxic and febrile) reactions which can not be explained in this way are due to incipient coagulation changes or to blood containing potential coagulation factors, such as thromboplastic or thrombin.

TECHNIQUE.

There are three methods of transferring blood from donor to recipient, viz:

- 1. Direct transfusion.
- 2. Indirect transfusion.
- 3. Transfusion of treated or prepared blood.

Direct transfusion implies the transfer of blood directly from vessel to vessel. It may be from vein to vein, or artery to vein. The vessels may be sutured, end to end, by paraffined silk or other ligature prepared to prevent coagulation where blood touches it, or by the use of a special tube. Crile, Lisperasse, Mayo and others have designed such tubes.

In several respects this is the ideal method. Least change can occur in the blood. Least chance for contamination with bacteria and air exists. There are, however, some serious objections to the method. It is technically rather difficult. It requires a slight operation upon the donor. Clots do form with stoppage of flow and embolic formation. The flow of blood is very difficult to govern and the estimate of quantity given is correspondingly uncertain. The methods offered for such estimating are based upon actual changes in body weight, changes in hemoglobin percentages in donor and recipient, and upon blood pressure. These are neither practicable nor very accurate.

Indirect transfusion consists in withdrawing blood from the vein of a donor into syringes or specially designed tubes and then promptly injecting it into the veins of re-

cipient before coagulation changes occur. Such apparatus is made usually of glass and carefully coated over on the inner surfaces with paraffin paste to lessen the change of coagulation. Lindeman's syringe method is widely known. It requires several 20 c c glass syringes coated with paraffin. One man aspirates the blood from donor. A second receives this loaded syringe and promptly injects. A third rinses the soiled syringe in sterile salt solutions, and perhaps recoates it with paraffin and places it with the ready for use syringes.

The objections are numerous. There are many chances for contamination, air embolism and imperfect paraffin coating, and hence coagulation. Slight delays may be unavoidable and the coagulation time exceeded. It requires team work.

The other indirect methods have like objections to greater or lesser degrees. To have the needle in donor's vein, the flow lessen and a clot form when one-third or one-half enough blood is obtained, is not conducive to the necessary speed within the coagulation time limits.

TRANSFUSION OF TREATED BLOOD.

It is because of the objections to both the direct and indirect methods that the treated blood method has become favored. Sweet considers blood as an organ and holds that in theory, at least, only its component parts—R B C platelets, W B C and serum should be considered. Therefore, in coal gas poisoning, for example, only the R B C should be separated and withdrawn and R B C injected, etc.

In practice, defibrinated blood has been used. It has not been very successful, probably because of the imperfect separation.

The most successful preparation of blood for transfusion has been by mixing it immediately after drawing with a .2% solution of sodium citrate. No deleterious effects arise from its use even where several hundred c c are injected. The donor need not be in the operating room, and even hours may safely elapse between drawing and injecting. The dangers of contamination do not exceed the indirect methods. Some men use the paraffin

coating of apparatus as an extra safeguard. The blood should mix in some way with the sodium citrate at once. There need be no haste in the administration, and one has an absolute knowledge of the amount given. The method has converted a rather difficult, uncertain and hazardous task into a comparatively simple, safe and certain procedure and is doubtless the best known today.

REFERENCES.

1. Hartwell, N. Y., Med. Nov. 1914.
2. Sweet, Personal Notes.
3. Peterson, J. A. M. A., April 22, 1916.
4. Garbat, J. A. M. A., May 13, 1916.
5. Satterlee-Hooker, J. A. M. A., Feb. 26, 1916.
6. Lindeman, J. A. M. A., Feb. 26, 1916.
7. Cherry-Langrock, J. A. M. A., Feb. 26, 1916.
8. Moss, American Journal of the Med. Science, May, 1914.

The Choice of a Donor in Blood Transfusion.

Geo. W. Covey, A. M., M. D., Lincoln.

The objects in view in choosing a donor for a given recipient may be tabulated as follows; namely:

1. To avoid the accidents due to incompatibility of bloods.
2. To discover disease of the donor transmissible to the recipient; and possibly conversely, to protect a would-be-donor who is not physically fit to give his blood.
3. To find for the septic recipient a blood bearing anti-bodies to the infecting organism.

Since the body of this paper is to deal with the first of these I will consider them in a reverse order.

We feel that infections, particularly sepsis, offer one of the widest fields of usefulness for blood transfusion. Though this was one of the earliest fields in which it was used yet it is one comparatively unworked. It has been pointed out by Ottenberg and Libman (1) that frequently a patient about to be overcome by infection may have the balance turned by giving him a few ounces of healthy blood. Just how the new blood does this we do not know; possibly by continuing to live and functionate in the vessels of the recipient or by stimulating new blood production. How much more might this do if the donor's blood contained specific antibodies toward the

offending organism? A fairly plausible theory of the crisis in lobar pneumonia is that at that point in the disease the patient's supply of antibodies has reached the quantity necessary to overcome the toxins and organisms present in the blood. If this is true, a particularly septic or toxic case might be mitigated by transfusion from a donor who had recently had pneumonia or who was immunized against the caustive organism.

The disease above others which we fear transmitting from donor to recipient is of course syphilis. Besides a history and physical examination, barring necessity for great haste, a Wasserman reaction should be done on every donor. It goes without saying that active tuberculosis or sepsis bars a donor from recipient's standpoint, and that any debilitating disease whether transmissible or not bars him from his own viewpoint.

(1) Am. Journ. of Medical Science Vol. C1-No. 1 pp. 36.

The reactions which occur as the result of transfusion present a variety of phenomena varying from a profuse perspiration, a slight elevation of temperature, or a transient polyuria or albuminuria to a most violent chill, high temperature, thready pulse and even death. We must also consider the formation of thrombi and foreign protein intoxications such as urticaria to be reactions. These latter however have largely disappeared since direct whole-blood transfusion has replaced defibrinated blood, probably because liberation of thrombokinase by destruction of the formed elements of the blood is in this way lessened or entirely done away with. These however belong in the discussion of technique and fall more naturally into the paper of my colleague. However, avoidance of hemolysis and agglutination as described below cannot but have a marked tendency to do away with clot formation, because large masses of agglutinated cells must make good nuclei for thrombus formation and very large ones may even play the part of emboli particularly in the lung capillaries, as has been shown experimentally (2).

HEMOLYSIS AND AGGLUTINATION.

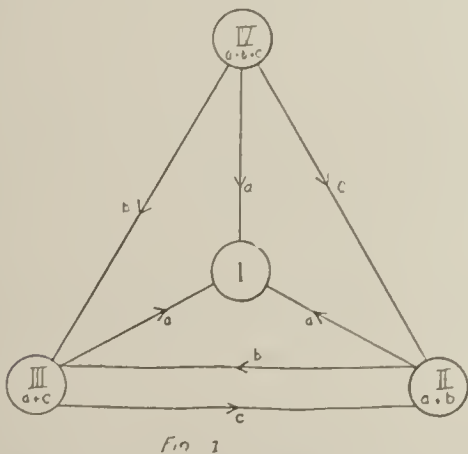
Whenever hemoglobin is rapidly liberated

from the blood cells, a reaction occurs consisting of fever, hemoglobinuria (if the concentration of hemoglobin in the plasma exceeds 0.06 grammes per kilo body wt. (2)) albuminuria, cylindruria, or even complete suppression of urine. It has been shown (2) that the injection of pure solutions of hemoglobin produce less intoxication than an equivalent amount of the erythrocytic stromata, hence both factors may be at work to produce these phenomena. Hemolysis is usually preceded or accompanied by agglutination and it is these factors that are biologically most dangerous in blood transfusion. Bloods mutually neutral as regards the presence of iso-agglutinins are also neutral as regards iso-hemolysis.

(2) Hewlett, A. W., Functional Pathology of Internal Disease, pp 566 (Vol. I of "Monographic Medicine.").

It is somewhat unusual for the blood of one animal to agglutinate or hemolyse that of another belonging to the same species, but in man we find present three definite iso-agglutinins, dividing this species into four groups. As has been shown by Moss (3) and again by Brem (4).

There are various ways of designating these three iso-agglutinins but this diagram is a simple one which I have worked out. (Fig. I).



Group No. 1 has no iso-agglutinin. Groups Nos. 2, 3 and 4 each have an iso-agglutinin "a" which acts upon the cells of group No. 1. Group No. 2 has in addition to "a" an iso-agglutinin "b" which acts upon the cells of group No. 3. Group No. 3 has agglutinins "a" and "c" and the latter of which acts upon cells of group No. 2. Lastly group No. 4 has all three "a", "b" and "c".

Consequently the cells of group No. 1 are agglutinated by the sera of all the other three and its

serum agglutinates no cells. Vice versa, group No. 4 serum agglutinates all other cells and is itself agglutinated by none.

The sera of No. 2 and No. 3 besides agglutinating the cells of group 1 do so to the cells of each other.

In testing our donors and recipients we have used the simple technique outlined by Brem (4) as follows:

From the recipient and each other person to be tested eight drops of blood are taken, six in one empty centrifuge tube and two into 1½ c. c. of one per cent citrate of soda in physiological saline solution. When the blood in the first tube has clotted the clot is loosened and thrown down, thus giving an abundance of serum for 20 to 30 tests. Hang-drops are made consisting of two loopfuls of donor's serum and one of recipient cells and vice versa. Agglutination occurs well within five minutes if at all. The whole thing is a matter of less than 15 minutes work.

(3) Moss, W. L., "Studies in Iso-agglutinins and Iso-hemolysins," Bull, Johns Hopkins Hospital, 1910, XXI, 23.

(4) Brem, W. V., M. D., "Blood Transfusion, with Special Reference to Group Tests," Jour. A. M. A., July 15, 1916, p. 190.

It has been considered safe, if in haste, to use the blood of a near blood relative. Undoubtedly it is safer as a rule, than that of a non-related donor. However, recent work has shown that the safety zone is very limited. The zone of absolute safety is between mother and child for about two weeks after birth. Later than this even the mother's blood should be tried out against that of her child before using it for transfusion to the child.

It has repeatedly been shown that the bloods of brothers and sisters may be antagonistic to one another. Furthermore, knowing that the blood of donors and recipient are in the same group is not quite sufficient, and if time permits they should always be tried out one against the other.

The Public School in Relation to Epidemics.*

Jas. M. Patton, M. D., Omaha.

The question of the responsibility of the public schools as distributors of contagion was suggested by this society some two years ago while discussing the general clean-up following the typhoid epidemic.

The scarlet fever epidemic of a year ago,

*Read before the Douglas County Medical Society, 1917.

the present prevalence of the same trouble in Benson, and the possibility, as Dr. Coulter pointed out a month ago, of a more or less general invasion during the coming months of poliomyelitis, makes it well worth our while to consider whether under our present system of school hygiene, there is an actual increase of the contagion through indiscriminate use of books, pencils and other apparatus, insufficient ventilation, etc., or whether it is merely contributory, due to the unavoidable contact of children in the class rooms and on the play ground.

In order to get at the facts following the discussion mentioned above, we wrote to a number of the principals of the ward schools and received three or four replies. While they were too few for any definite conclusions, it was very evident that there was room for improvement, so at the beginning of this school year, I sent a circular letter to each of the principals of the ward schools, receiving sixteen written replies and in several instances, where the principals did not wish to make a written statement, they were kind enough to call me by phone and give me the desired information. I also visited a number of the schools on the invitation of the principals.

In the above mentioned letter I asked the following questions:

I. Is it customary or possible for a pupil to have the same set of books, erasers, sponges, pencils, etc., throughout the year?

II. If this is the case are all books, equipment, etc., disinfected before being given out to the students in the fall?

III. Is it practical or possible for a pupil to occupy the same desk throughout the year, or if the pupil changes, are any precautions taken as to washing or disinfecting the desk before being assigned to another?

IV. What antiseptic precautions are taken regarding a child's equipment who is sent home with suspected trouble such as sore throat, cold, etc.?

V. What precautions are taken in case of undoubted infection such as scarlet fever, measles, etc.?

VI. Are children allowed to use a common drinking cup or is each child compelled to furnish his own?

VII. Do you have "sanitary" drinking fountains and if so, do you consider them adequate and sanitary?

VIII. Is there in your opinion any overcrowding or improper ventilation in any of the rooms of your building?

To question number one in regard to the use of individual equipment during the year there were twelve answered yes, two no, and two that did not answer. However, I learned on observation in some of the schools, it is customary for all pencils, kindergarten supplies, etc., to be gathered together in a common box at the close of the period and redistributed when next needed without any reference to who had used it previously. Many of these pencils showed visible evidence of having been chewed by the previous user and would undoubtedly be chewed by the next child who drew it, and we can think of no more fertile way of distributing infection than through the instrumentality of more or less dirty and germ laden pencils and kindergarten equipment.

Six did not answer the question in regard to disinfecting books before redistribution. Eight answered no. One reported that disinfection was practiced and one that it was done in certain instances.

Eleven were of the opinion that it was impossible for a child to occupy the same desk throughout the year. Two answered yes. One principal insists on a thorough washing of the desk if it is necessary to make a change.

Nine principals took no precautions following colds, etc., for which a child was sent home. One had the desk washed and two followed up the case.

Thirteen employed fumigation following infectious diseases. One destroyed the equipment of such scholars. Two did not answer.

In none of the replies were children allowed to use a common drinking cup. All were supplied with "sanitary" drinking fountains. One considered them inadequate. In one of the schools visited I found the "sanitary" drinking fountains to consist of a row of most enticing perforated knobs which I am told the children clasp lovingly with their lips and allow the water to gurgle down their throats, about as unsanitary an arrangement

as could be well imagined but one which a very simple wire guard could easily correct.

One case of overcrowding was reported and also two cases of poor ventilation. Several other cases were reported verbally.

In every school visited the principals were most cordial and asked repeatedly for any suggestions that the medical profession could give for the improvement of hygienic conditions.

From the above we are glad to see that a number of principals are making an honest and intelligent effort to protect their children by systematic efforts at fumigating books and equipment. One principal insists on fumigation of all books before redistribution in the fall. Another has each pupil's books and equipment wrapped in a paper package and labeled with the child's name so that there will be no question about indiscriminate redistribution. Another wishes that some adequate means for disinfecting books might be provided and a number have the desks washed at regular intervals with an antiseptic solution.

In all of the above replies, the equipment of a child known to be sent home with a contagious disease was fumigated and in several instances the books were burned. Several principals reported fumigation of the rooms from which the contagious case was sent home, also adjacent halls. One principal insisted that as soon as a contagious case is discovered and sent home, all pupils in that room should be dismissed at once, instead of keeping them until evening as is the custom, exposed to the infection, fumigating after school hours, such germs as the children have failed to collect.

If we can trust the more recent theories of contagion, the transmission of various diseases such as measles, scarlet fever, diphtheria, etc., which are spread so rapidly through the instrumentality of the schools, depends almost wholly on contact, that is contact with the germ laden expired air of the one infected. If this is true, the question of nipping incipient infections in the bud is up to the teacher rather than to the principal or medical inspector. With her intimate knowledge

of each pupil she will be quick to detect any evidence of indisposition, and should report the case at once to the principal, medical examiner or school nurse. If the case is at all suspicious, a prompt fumigation of that room would reduce the danger to a minimum.

Solis-Cohn (N. Y. Medical Record, Vol. 88, pp. 551) made a careful geographical study of an epidemic in Philadelphia which he traced to a certain ward school and from that school to other schools which acted as centers. He is strongly of the opinion that all children at all indisposed should be sent home, all convalescents should have a thorough examination by a competent medical examiner before being readmitted, as many infectious cases are wholly unrecognized by the parents or the case may be falsely reported to get the child back to school more quickly. Any child out of school more than two days should be subjected to the same careful examination before being re-admitted. On finding a fresh case of infection all pupils in that room should be kept under close observation and examined repeatedly for early evidences of infection.

He is convinced that a systematic supervision of schools would go a long way toward stamping out infections before they have had a chance to spread.

This is more or less applicable to the lower grades where a child keeps the same desk and is in close association with a more or less constant group of classmates. In the higher grades, with the introduction of departmental work, the task becomes more complicated. Pupils of several different grades occupy the same class room during the day, children of various classes mingle more or less intimately in the halls and on the play ground. In cases where but one toilet room is provided for boys and one for girls, there is sure to be more or less crowding and mingling of grades. One principal, in replying, stated that the toilet facilities in the building were not adequate and could easily be a factor in the distribution of infectious diseases. Another stated that the city objected to a sufficient amount of water being used to keep the ventilation in the proper condition. Another stated that the air in the class rooms im-

mediately over the toilets was often disgustingly offensive.

This brings up the question of the influence of the prevailing styles of school architecture as a strong factor in the spread of contagion. Todd of Syracuse (J. A. M. A., Vol. 59, pp. 1177) feels that while we are making progress along some lines, we are woefully negligent when it comes to adapting school architecture to the needs of modern school hygiene. His observations, however, convinced him that the class room is the real unit of dissemination of infectious diseases, that is if a case of infection appears in a certain room, the children in that room can be watched, and if the children of that room can be kept from mingling with the children of other rooms, there is practically no reason for the infection spreading to other rooms. Under our present system of school architecture, such segregation is impossible as children of all grades meet and mingle in the halls, on the stairways, and in the toilets, especially when but two toilet rooms are provided. He mentions that the halls are dusty and poorly ventilated and that the basements, where the toilets are frequently located are often the resting places for junk and discard that accumulates about a building, not much use but too good to throw away, at the same time excellent collectors of dust and germs. In one school visited the boy's toilet room was reached by a dark narrow stairway which led down to a basement lumber room which was piled with old unused lumber, and then through a dark narrow hall to the poorly ventilated and unsanitary toilet. There was no forced system of ventilation in this building and the rooms were crowded and although the principal is doing her best to keep the air pure, she is working under a heavy handicap. In case of infection the halls and basements are very hard to fumigate and are the more dangerous because they are the common passage-way of children of various grades.

The question of play ground and play ground equipment must also be considered. One principal feels that there is plenty of room for improvement in the play ground management from the standpoint of prevent-

ing infection, and while we realize that there is less liability of infection out in the open air than in the halls or class rooms, at the same time boys are prone to pile up on most any sort of a pretext, and one boy coming down with measles or scarlet fever can pretty thoroughly expose the rest of the bunch to a rich germ laden atmosphere in the course of a short scrimmage.

Contamination from baseballs, footballs, bats, etc., must be pretty rare but still possible.

Todd's solution of the infection problem would be the cottage system which has been very successfully tried out in a number of cities, and to a limited extent here in Omaha, and by play grounds of sufficient size so that by regulating the play time schedule each room could have its individual play ground with no necessity for intermingling of grades. The only real objection that can be raised, and if it is true that children are our greatest national asset, it is a mighty flimsy one, is that of expense. To quote from Todd's paper:

"The people living in a wealthy community can afford to buy valuable ground for stores, manufacturing plants, picture shows, and saloons, and if they fail to grow healthy children they defeat the principle object of their life's work. These same people would scorn and refuse to live in a tenement house occupied by families using a common hall and a common toilet and still they do not hesitate to send their children, their most precious possessions to a tenement school to be exposed to the infections of the entire community by the unnecessary mingling in the common halls and toilet rooms."

The flocks of rather unsightly annexes which have sprung up about our ward schools may after all be the most sanitary, and with the thorough ventilation, ampler exits, and single stories are surely the safest units of our class room system.

To come back to the question of disinfection of school books. In spite of the fact that principals are asking for some practical method of disinfection little is being done. Rosenau, in his "Preventative Medicine and

Hygiene," page 1033, says, books may be disinfected by means of heat and formaldehyde. They must be arranged to stand as widely open as possible on perforated wire shelves and exposed for twelve hours to a temperature of 80 degrees centigrade with a high percentage of formaldehyde, a partial vacuum having first been produced in the fumigating chamber. Binding, illustrations, and print are not injured by this process.

Dr. Nice is quoted in the J. A. M. A., Vol. 58, Page 1201 as recommending the use of moist heated air at 80 degrees centigrade and 30 to 40 percent formaldehyde with a thirty-two hour exposure. This is said to destroy all non-sporing bacteria in closed books without injury to bindings, etc. He mentions a number of cities in which routine fumigation is practiced and adds that the books should perhaps always be disinfected before being distributed to a new group of students.

From the above I think we must admit:

1st. That whether desirable or not, it is entirely practical for children to use the same books and equipment throughout the term or grade.

2nd. That it is generally practical in the lower grades, at least, for a child to keep the same desk throughout the term and if, for any reason, a re-assignment is necessary the desk can be washed with an antiseptic solution before being reassigned.

3rd. That it is thoroughly practical to fumigate all school books and other individual equipment before redistribution, and that a number of progressive cities are insisting on this being done.

4th. That in suspected cases the child should be watched by the proper medical officer, his desk washed and equipment fumigated, as well as his having to pass a satisfactory medical examination before readmission.

5th. In case of undoubted infection, in addition to the above, the other children in the room should be dismissed at once instead of waiting until evening, and the room thoroughly fumigated.

6th. That there are great possibilities for

improvement in school architecture, and that we, as medical men, should use our influence to the end that buildings and play grounds be arranged with the maximum of hygienic and sanitary efficiency.

Two Cases of Surgical Infantile Paralysis

Selected Case Reports from the Clinic of the
Nebraska Orthopedic Hospital
March, 1917.

H. Winnett Orr, M. D., F. A. C. S., Lincoln.

Case No. 11 P. S. Came to the hospital at the age of 11 in October, 1915, having had acute Infantile Paralysis 7 years before. She had a pronounced atrophy of the right leg below the knee with the characteristic drop foot of paralysis of the anterior tibial group of muscles in the leg. She walked without crutches but with the foot pronated and everted and with marked limp.

She was found to have an atrophy of an inch and a half of the right thigh and two inches of the right calf. The right foot was one inch shorter than the left. She had a slight right dorsal scoliosis as a result of faulty gait and bad standing position. Although the thigh muscles of the right extremity were weak she could extend and flex the knee without particular difficulty and there was no contracture deformity except that the foot did not admit of full dorsal flexion.

On January 23, 1916, she was examined by Doctors Lord, Ryerson, Geist, Henderson, Steindler and Orr* and a classical Whitman operation agreed upon. This was done the same day by Drs. Steindler and Orr.

An incision about 4 inches long was made starting behind and above the external malleolus and curving down behind it to the cuboid. The tendons of the peroneal muscles were divided. The astragalus was removed and articular surfaces thus exposed all carefully pared off. The strong ligament between the tibia and fibula was divided and the distal ends of the proximal portions of the peroneal tendons were attached to the achilles tendon. The foot was set backward so that it fitted nicely into the space between the ends of the tibia and fibula.

The wound was now closed and the foot dressed in Plaster of Paris with the toes pointed slightly downward.

The foot was left in plaster in this position from January 23 to February 12. The cast was again changed on April 27. She continued to wear casts until May 8, 1916, at which time her brace was put

*This was at the special Infantile Paralysis Clinic held at the Orthopedic Hospital, January 23 and 24, 1916, with Orthopedic surgeons present as follows: Dr. E. W. Ryerson, Chicago, Ill.; Dr. M. S. Henderson, Rochester, Minn.; Dr. Arthur Steindler, Iowa City, Iowa; Dr. J. P. Lord, Omaha, Neb., and the writer.

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The Fox Bill Becomes a Law.

The dream of hundreds of Nebraska medical men has been realized in the passage by both houses of the Legislature of the Fox Bill. The bill has been signed by Governor Neville and now becomes a law. The real test comes in the type of men who will be appointed to the positions thus created. Let us hope that the State Board of Health will scrutinize with great care all applicants for positions under this act and that Nebraska may be given in fact as well as in theory a modern and competent Public Health administration.

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The Vision of Mirzah.

“ ‘Mirzah,’ said he, ‘cast thy eyes eastward, and tell me what thou seest.’ ‘I see,’ said I, ‘a huge valley, and a prodigious tide of water rolling through it.’ ‘The valley that thou

seest, 'said he, 'is the vale of misery, and the tide of water that thou seest is a part of the great tide of eternity.'

" 'What is the reason,' said I, 'that the tide I see rises out of a thick mist at one end, and again loses itself in a thick mist at the other?' 'What thou seest,' said he, 'is that portion of eternity which is called time, measured out by the sun, and reaching from the beginning of the world to its consummation. Examine now, 'said he, 'this sea that is thus bounded with darkness at both ends, and tell me what thou discoverest in it.' 'I see a bridge,' said I, 'standing in the midst of the tide.' 'That bridge thou seest,' said he, 'is human life: consider it attentively.' Upon a more leisurely survey of it I found that it consisted of arches, with several broken arches.

" 'But tell me further,' said he, 'what thou discoverest on it.' 'I see multitudes of people passing over it, said I, 'and a black cloud hanging on each end of it.' As I looked more attentively I saw several of the passengers dropping through the bridge, into the great tide that flowed underneath it; and upon further examination, perceived there were innumerable trapdoors that lay concealed in the bridge, which the passengers no sooner trod upon, but they fell through into the tide, and immediately disappeared. * * * *

" 'What mean,' said I, 'those great flights of birds that are perpetually hovering about the bridge, and settling upon it from time to time? I see vultures, harpies, ravens, cormorants, and many other feathered creatures.' 'These, said the genius, 'are envy, avarice, superstition, despair, love, with the like cares and passions that infest human life.' "

Like Mirzah, we may witness today, if we care to observe and reflect, one of the most distressing weaknesses of the human mind, the overpowering of reason by the emotions. The times are unfavorable to calm deliberation; the impending cataclysm of war with its uncertainties renders ordinary mental landmarks inadequate for the extraordinary thinking that should be done. The emotions gain the upper hand. It is the suddenness of a catastrophe that overwhelms; the further

removed it is in time the less the effect. Men and women gasp at the lives sacrificed in European trenches but view with indifference, or actively combat the efforts of a health officer to enforce the municipal regulations against small-pox. A tornado may be a terrible visitation but the constant insidious warfare of pathogenic micro-organisms fails to penetrate the intelligence of the average man.

The Independent for December 11, 1916, gives the following approximate statistics of casualties for the first two years of the present world war. The total dead are 4,631,500. The wounded 11,245,300 and those invalided on August 1, 1916, 3,373,700. This is undeniably an enormous loss of life and if the war should continue as long as did the Thirty Years War, which, too, was a general European conflagration, the results would be beyond conception.

But, on the other hand, a cursory investigation shows that time and again have deadly epidemics swept over the earth; in fact, encircling the globe and leaving in their wake a staggering loss of life. In the fourteenth century an epidemic, the Black Death, invaded Europe from Asia by way of the Crimea, its origin being referred to Cathay. It reached England in 1348. A second epidemic occurred in 1361 and a third in 1368. The details of this great calamity have often been dwelt upon by historians and it is calculated by Hecker that 25,000,000 persons, one-fourth of the population of Europe, died of this disease. The reported deaths from plague in India for the ten years beginning 1896 gave a total of 4,097,764. Seven distinct invasions of cholera into Europe took place during the nineteenth century of which the second, third, fourth and fifth crossed the Atlantic to America. The deaths in Russia alone during the 1892 epidemic of cholera were 800,000. Small-pox killed 3,000,000 in France and 10,000,000 in Russia during the eighteenth century. There are constantly 35,000 deaths from typhoid every year in the United States and in the United States tuberculosis, pneumonia and cancer each have a higher mortality than typhoid.

If Addison, in the vision of Mirzah, had conceived the Bridge of Life today, instead of

multitudes of people passing over it, he might have jammed it with a mob.

To this direful picture we may add a quotation from the *Century* for August, 1909, by Professor Irving Fisher. "We must learn to realize that our deadliest foes are not the great nations across the sea, but the tiny microbes that surround us. It is these microscopic enemies that destroy the major part of the human race; yet as Pasteur said: 'It is within the power of man to rid himself of every parasitic disease.' At present we are losing 150,000 lives a year from the 'Great White Plague', and these lives flicker out after an average illness of three and a half years each. Could all these lives be saved, over a billion dollars would be added to our annual national dividend, the average lifetime would be two years longer, and national efficiency and happiness would be increased in a ratio which statistics cannot measure."

Centuries ago Marcus Aurelius Antoninus wrote, "If any man can convince me and bring home to me that I do not think or act aright, gladly will I change; for I search after Truth, by which man never yet was harmed. But he is harmed who abideth on still in his deception and ignorance."

*Statistics carefully compiled at Washington indicate a death toll in the war of 4,441,200 men, with 2,598,500 wounded and 2,564,500 captured or missing. The American Review of Reviews, April, 1917.

Two Cases of Surgical Infantile Paralysis. (Continued from page 285)

on and she went home. On October 12, 1917, she returned to the hospital having developed an acute inflammation in the area of the previous operation. With the application of a cast, however, and a few days rest this subsided without further trouble. She now presents herself as practically cured of her deformity and disability. She walks very well and will continue to improve as to her gait.

This procedure is one of the most satisfactory that we have for the relief of paralytic cavus deformity. Close adherence to the technic advocated by Dr. Whitman gives uniformly good results and the procedure is to be highly commended.

Case No. 12 E. C. The following exceptional case history is recorded to show that patients suffering from the most severe forms of Infantile Paralysis disability may be steadily improved and ultimately greatly benefitted by a rather long series of operative procedures. It is also reported for the reason that it is possible in connection with this one case to describe several valuable surgical procedures for use in Infantile Paralysis deformity and disability.

This patient came to the hospital on June 24, 1907, at the age of 15. She had Infantile Paralysis at the age of 5½. She came in a wheel chair though she could walk a little with crutches with both feet and legs in braces. Both feet were in marked equino varus position and she had an extensive paralysis of the right upper extremity. She began her series of surgical procedures on July 1, 1907, at which time a modified Whitman operation was done on both feet. The astragalus was removed in each case and both feet forcibly corrected. An effort was made to secure arthrodesis in good position. After this time she continued to wear plaster for more than a year. On October 1, 1907, she went home for about three months. Casts were changed at intervals of about every two months.

In January, 1909, she was operated upon again for the relief of a flail condition of both feet; the previous operation not having given sufficient stability for good walking. Also there was still a considerable amount of varus deformity. On this occasion a cuneiform resection of the cuboid was done on both feet and the feet put up in plaster in pronounced eversion. She was kept in plaster until July 26, 1910, at which time she went home again. By this time her walking had been materially improved; both feet rested squarely upon the floor but she was considerably handicapped by a weak left knee. Because of this she could walk well only when protected by a long plaster cast or a celluloid splint which she wore for a time.

On the occasion of our special Infantile Paralysis clinic, above referred to, she was again examined and the following operation agreed upon and done:

The sartorius was exposed and found poorly developed—not strong enough to transfer. The biceps was divided just below the knee joint. The proximal portion was too short to reach to the patella, so it was lengthened by three silk loops according to a method suggested by Dr. Ryerson.

A Gallie operation was done on the peronei of the left foot for the varus still remaining. The peronei were cut off about two inches above the malleolus and the proximal ends of the distal portion carried through a hole in the fibula from front to back with the foot everted—one sutured in front of and one back of the malleolus into a groove in the bone. Plaster was put on with the leg straight on thigh and with the foot everted.

These various procedures at intervals covering ten years have sufficiently improved the strength and gait of this patient so that she now gets about very well. She is acting as a teacher and librarian in the hospital and has been for several years. She not only performs her duties in the library but covers the entire institution walking with crutches but without braces or support of any kind. She goes down town on the street car without assistance. When it is remembered that at the age of 15 she was at home depending upon her parents to get her from

her home to the high school only a few blocks away in a wheel chair it will be seen that good courage on her part and persevering treatment have accomplished enough to make it all worth while.

A Case of Jaw Fracture, Treated by Means of an Interdental Splint.

Chas. H. Breuer, M. D., Lincoln.

G. J., aged 26, carpenter by occupation, feeling ill while inside a motion picture theater, went out, fainted, and struck his jaw against an iron doorstep, sustaining a compound fracture of the left side of the mandible.

The chin deviated to the left, and on attempting to articulate the teeth, the lower ones were a full

en and two more were loose in their sockets. There were open wounds, internally and externally. Pal-

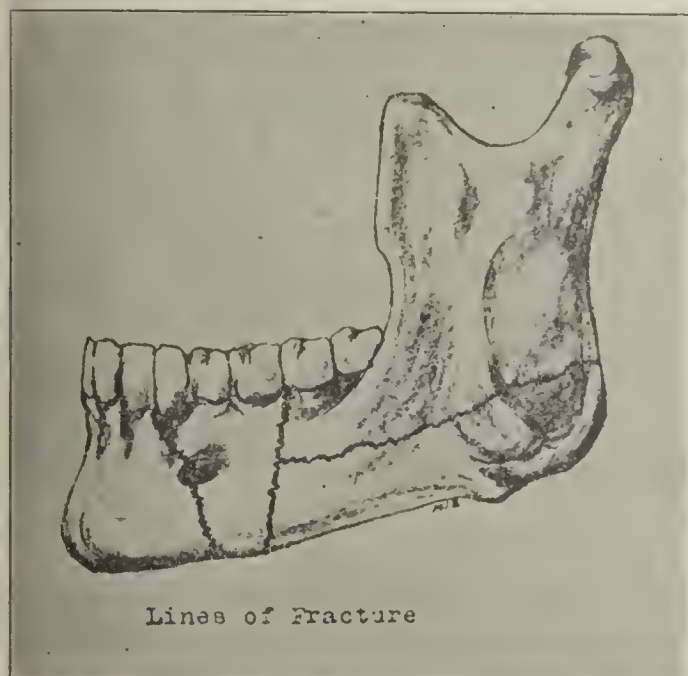


Figure 1.

inch behind the upper ones. The teeth on the right side were displaced inwards. Three teeth were brok-



Figure 2.



Figure 3.

pation showed lines of fracture and position of fragments as in figures 1 and 2.

With the aid of Dr. Davis, of the Lincoln Dental College, an interdental splint was made to hold the fragments of the jaw together. This is shown in figure 3, and consists of a horseshoe-shaped plate,



Figure 4.

which fits the lower teeth perfectly, just as a dental plate, so that every fragment is anchored tightly. There are two strong wires on the plate, which project from the angles of the mouth and are curved backward, following the contour of the cheek, about a quarter of an inch away from it. These wires are removable, being slipped into flat sockets in the plate. Bandages are passed over these wires and under the chin, compressing the teeth and the plate. The advantages of this splint are, that the fragments are held in good apposition, and at the same time, the patient can open his mouth, and the dressing, as shown in figure 4, is not very inconvenient to the patient. Of course, he cannot use his jaw for mastication, but he can eat soft diet, and can talk, which is not the case with most dressings for this form of fracture.

Seiler's alkaline antiseptic was used in his mouth every two hours, to keep the wound clean. The splint was worn for five weeks, the bandage being changed several times for the sake of cleanliness. The internal wound healed without suppuration. The external wound suppurated a little, and required a small incision and drainage. In seven weeks, he was ready for the rest of his dental work. He had lost four teeth, which were replaced by a bridge. His lower line of teeth is now straight and they articulate perfectly; he can chew on the injured side as well

as on the other side. Figures 5 and 6 show the results in the mouth and outside.



Figure 6.

Book Reviews.

Preventive Medicine and Hygiene by Milton J. Rosenau, Professor of Preventive Medicine and Hygiene, Harvard; Director of the School for Health Officers of Harvard University and the Massachusetts Institute of Technology; formerly Director of the Hygienic Laboratory, U. S. Public Health Service, etc., with chapters upon Sewage and Garbage, by George C. Whipple, Professor of Sanitary Engineering, Harvard; Vital Statistics, by John W. Trask, Assistant Surgeon-General, U. S. Public Health Service; Mental Hygiene, by Thomas W. Salmon, Medical Director, National Committee for Mental Hygiene, etc. Second edition. Thoroughly revised. Cloth, \$6.25 net. New York and London. D. Appleton and Company, 1916.

When the first edition of this work appeared in 1914 the author announced that as far as he knew, his was the first work to cover the entire broad field of the medical and related sciences which form the foundation of public health work. That there was a real need for it is shown by the rapid exhaustion of the first, and the early appearance of the present, second, edition. However, the pres-



Figure 5.

ent edition is much more than a mere revision of the earlier one. To the contents of the earlier work have been added much new material on venereal disease, tuberculosis, bacterial vaccines, to mention only a few of the more important items; much, also, of the earlier material has been entirely rewritten, notably the chapter on the Prevention of Mental Diseases in the first edition, which has now been altered both in scope and title to include the entire field of Mental Hygiene. And finally, the book now adds its quota to the matter of national military preparedness in the shape of an admirable elementary article on Military Hygiene, which forms the concluding section, and which is well worth the perusal of any practitioner who regards national service in time of need as one of his duties.

Comment on a work of the standard character of the one in question is scarcely necessary; both Dr. Rosenau and his work are too well, and too favorably known, to require introduction here. It may be well to emphasize, however, that the book is not primarily a technical treatise for the benefit of the professional sanitarian, but a broad discussion of the entire field, particularly suited for the general physician, part of whose duties necessarily lie along the lines of public and personal hygiene.

H. E. E.

The Physician's Visiting List for 1917. Lindsay & Blakiston's, \$1.25 net. P. Blakiston's Son & Co., Philadelphia.

A convenient visiting list bound in limp, black leather and arranged for twenty-five patients per week: thirty-six pages offer a physician's dose table and other valuable information which constitutes the preface of the Visiting List proper. The note book is neat, compact, printed on excellent paper and will make a valuable addition to the physician's records.

Focal Infection. The Lane Medical Lectures, by Frank Billings, Sc. D. (Harv.) M. D. —Delivered on September 20, 21, 22, 23 and 24, 1915, Stanford University Medical School,

San Francisco, California. (D. Appleton & Co., New York, 1916).

The work of the last ten years of the Presbyterian Hospital group with co-operation of the Memorial Institute for Infectious Diseases, the Otho S. A. Sprague Memorial Institute and the Pathological and Research Department of St. Luke's Free Hospital of Chicago is collected in the lectures chronicled in this book. The book consists of five chapters or lectures:

1. A General Consideration of Focal Infection.
2. The Streptococcus-pneumococcus Group.
3. Acute Diseases Related to Focal Infection.
4. Chronic Diseases Related to Focal Infection.
5. Treatment.

These lectures do not lend themselves to abstracting. They are an applied, illustrated abstract of a vast amount of work which has been done on the subject of focal infection by the above mentioned groups of men.

The development of the knowledge and application of focal infections is peculiarly a Chicago product which found its sponsor in Dr. Billings. I remember in my student days, fifteen years ago, that the author had a vision of what was to come, and his enthusiasm and willingness to give opportunity for work and credit to others was largely responsible for the brilliant work of Edward Rosenow, D. J. Davis, E. E. Irons, and others. The work is one that can be read, and profitably re-read. It throws a light on many obscure conditions and forms the basis of rational treatment for a large number of conditions in which treatment hitherto has consisted of more or less apologetic makeshifts and side-stepping. Among the diseases that have been quite definitely traced to focal infections are acute rheumatic fever, rheumatic endocarditis, myocarditis, and pericarditis, chorea, acute systemic gonococcus infection, malignant endocarditis, acute nephritis, acute appendicitis, cholecystitis, acute gastric and duodenal ulcer, acute pancreatitis, erythema nodosum, herpes, spinal myelitis, acute osteomyelitis, thyroiditis and iridocyclitis. The practitioner who does not appreciate the problem of focal infection is not giving his patients all that can be given them. Dr. Billings' book is the only place under one cover where even an approach to an adequate conception of the problem can be obtained.

A. D. D.

Constipation, Obstipation and Intestinal Stasis, by Samuel Goodwin Gant, M. D., L. L. D. Second edition. Octavo, 584 pages. Illustrated. Cloth \$6.00 net. W. B. Saunders Company, Philadelphia and London, 1916.

This is a second edition of this book, the first of which was printed in 1909. In the present volume

the author takes up and devotes seven chapters to the work that has been done since that time on Pericolitis, Perisigmoiditis, (Jackson's membrane), Lane's Kinks, Membranous Enterocolitis and Colica Mucosa, with a resume of the work that has been done on Intestinal Stasis. In this edition as in the last, the author emphasizes the importance of physical methods of treatment for intestinal conditions, and attempts to show that major surgical procedures are resorted to much more frequently than is justified. The book is not purely a medical book, but contains some very excellent articles on the Surgical treatment of Splanchnoptosis, and mechanical conditions causing constipation.

The book is undoubtedly the last word on this subject.

F. M. C.

The Surgical Clinics of Chicago, Volume 1, Number 1 (February, 1917). Octavo of 221 pages, 83 illustrations. Philadelphia and London: W. B. Saunders Company. 1917. Published Bi-Monthly. Price per year: Paper, \$10.00; cloth, \$14.00.

The Surgical Clinics of Chicago, a new series of case reports inaugurated by the W. B. Saunders Company, gives promise of being a most important group of surgical contributions. Case reports are vastly more valuable than expositions on surgical subjects or didactic lectures covering a given topic. To medical and surgical teaching, case reports are "source" material. Every practitioner interested in surgical diagnosis as well as modern surgical procedures should not fail to have these case reports at hand. The appearance of the first volume probably indicates a widening of the scope of the Murphy Clinics. The February issue is remarkably well printed, the paper excellent and the illustrations practically all that could be desired. Fewer half-tones from photographs and more line or wash drawings would increase the teaching value of the illustrations.

Man—An Adaptive Mechanism, by George W. Crile, F. A. C. S. Edited by Annette Austin, A. B. The Macmillan Company, New York. 1916.

When a surgeon of national reputation writes a book it is the fame of the author that establishes the immediate and powerful bias with which the work is received by the public at large. But this does not necessarily insure any direct proportion between reputation of the author and the value of the publication; in fact, it is conceivable that the re-

lationship at times may be one of inverse proportion.

Dr. Crile has written an interesting, thought-provoking book which the publishers have garbed in a most acceptable form of the printer's art. It is richly and attractively illustrated. As the title of the book indicates, it is a presentation of the idea that man is a mechanism, which in the past as in the present is constantly adapting itself to its environment. Furthermore, that the character of the immediate reactions of the mechanism is, in profound respects, a phylogenetically acquired inheritance. This conception is not new but many of the facts and arguments brought forward to support the idea are of an unusual kind, reaching a climax of importance in chapter IX, where the author expresses the application of his kinetic theory in his well known anoci-association. The practical value of this surgical procedure must be left to the judgments of surgeons since this is a technical field for experts but the reasoning upon which the existence of the kinetic system is formulated seems to the reviewer to be inadequate and insufficient. On page 158 it is stated, "The principal organs comprising the kinetic system are the brain, the thyroid, the adrenals, the liver and the muscles. The brain is the great central battery which drives the body; the thyroid governs the conditions favoring tissue oxidation; the adrenals govern immediate oxidation processes; the liver fabricates and stores glycogen and is the great neutralizer of the acid products of energy transformation; and the muscles are the final converters of latent energy into motion and heat." The only original experimental evidence offered by Dr. Crile and his collaborators linking these organs into a special kinetic system is the similarity of histological changes which the brain, adrenals and liver show when an animal is subjected to any of a great variety of experimental procedures. Beyond this there are only arguments based on superficial analogies, speculations and a riot of hypothesis. An unusual use of technical terms, makes comprehension of the author's meaning, at times, difficult and there is lacking the cautious, judicious expression and the pains-taking production of evidence that

should characterize a scientific publication even if intended for lay readers.

Thus on page 60 we may read, "Could every ceptor of the body be equally and simultaneously stimulated, that is, with the same (phylogenetic) force, there would be no action. Could the pain ceptors of an animal be equally and simultaneously stimulated, there would be no pain. * * * * If the body were immersed in great heat, for example, the body proteins would coagulate, but death would be painless." On page 87, "So complete throughout phylogeny has been this protection of the brain from injury that if the skull has been previously opened under anesthesia, the brain of a conscious patient may be explored with a probe for a tumor or other lesion without causing the slightest pain, indeed, the entire brain could be removed without the patient's knowledge." One might pertinently wonder what function the brain plays in consciousness if the entire brain can be removed without the patient's knowledge?

Page 100, "Of all these scavengers the most useful and perhaps the least appreciated are the gaso-genetic bacteria, one of which is the colon bacillus. By the production of gas these bacteria aid the peristaltic movements of the intestines and the movements of the diaphragm, in the acts of breathing, talking and vomiting for which resilient abdominal contents are necessary."

On page 181, "Adrenin itself is more alkaline than normal blood. The H-ion concentration of the blood in the adrenal vein as compared with that of the blood in other parts of the circulation is therefore an index of the amount of adrenin in the blood."

On page 355, "This indicates that acidosis is a factor in many diseases—acute and chronic—and that the centers in the medulla are stimulated by acidosis while the higher centers are depressed; it suggests an explanation of the phenomena of anesthesia, and that the ultimate cause of death is usually acidosis."

On page 361, "With properly adjusted electric stimulation of the various muscles by means of a faradic battery, there is no doubt

that, for instance, the motor mechanism of a dog, recently killed could be made to run, to fight, to bark, indeed to perform every adaptive movement of the body."

Further comment on the above quotations is unnecessary. Many more like them might have been selected and added to the list. Whatever the *raison-d'être* of this publication we may at least admire the energy and courage entailed in its production, and, possibly by contrast, through extravagance in statement, it may lead others to a greater sobriety in expression.

A. E. G.

A Manual of Nervous Diseases, by Irving J. Spear, M. D., Professor of Neurology at the University of Maryland, Baltimore. 12mo of 660 pages with 169 illustrations. Philadelphia and London. W. B. Saunders Company, 1916. Cloth, \$2.75 net.

This publication is a service book in two parts.

1st. The author recognizes our want of interest in the study and treatment of nervous disorders and rightly locates the cause, in our lack of a proper understanding of the anatomy and physiology of the nervous system, and of the best methods for securing evidence from the voluminous testimony given by nervous patients. His epitome of how we may correct these faults, is concisely stated in logical sequence.

2nd. The simpler and most common disorders evidenced by perversion, weakness, or loss of function by nerves, muscles, spinal cord, or brain, whether we know or do not know the existing pathology, are successively presented. In accounting for recognized nervous disorders which we call functional because of our ignorance of etiology, he presents very interesting—if not illuminating—references to perversions of the ductless glands. On the whole the Manual fills a niche in the study of neurology, most helpful to physicians in general practice, and medical students.

J. M. A.

A Text Book on the Practice of Gynecology, for Practitioners and Students, by William Easterly Ashton, M. D., L. L. D., with 1,052 new line drawings illustrating the text. Sixth edition, thoroughly revised. W. B. Saunders & Company, Philadelphia and London, 1916.

The reviewer is quite familiar with the work of Ashton, and regards it as a pronounced success, both as a reference book for general practitioners and as a text book for students. It is encyclopedic in its scope. No text book in the English language, or any other language, goes so laboriously into details in describing the steps of operations. There is nothing revolutionary in the text. The subject is presented in a logical, sane and safe manner. If lacking in any detail, it is in the presentation of pathology. In marked contrast to the possible deficiency in the presentation of pathology of the various pelvic disorders is a very exhaustive and well-ordered presentation of the clinical phenomena in the various operative and non-operative procedures. The fact that the work has reached its sixth edition evidences well-deserved popularity of the book.

P. F.

Care of Patients Undergoing Gynecologic and Abdominal Procedures, Before, During and After Operation, by E. E. Montgomery, A. M., M. D., L. L. D., F. A. C. S. Illustrated. Philadelphia and London, W. B. Saunders Company, 1916.

No man in America can more justly lay claim to the privilege of presenting a monograph devoted to the care of Gynecologic patients. Dr. Montgomery's ripe clinical experience and sound surgical judgment preeminently qualifies him for the task. The work is presented in a delightful conversational manner and is full of most healthful suggestions. In addition to discussion of the various means of preparing the patient for operation and the care of post-operative cases, there are presented many of the surgical operations, not only upon the pelvic organs, but those of the upper abdomen as well.

I recommend it as a useful hand-book for all those who practice Gynecologic and Abdominal Surgery.

P. F.

General Bacteriology. E. O. Jordan, University of Chicago. W. B. Saunders. Fifth edition. 669 pages.

While this book contains practically all of the information that the general practitioner would want, its chief excellence lies in its value as a text for the use of students. In writing a textbook on bacteriology the tendency is to make it a catalogue of details. Jordan

has gotten away from this tendency and presents the material largely in the form of discussions, laying stress on such things as portals of entry, modes of dissemination, pathogenicity for man and animals, prophylaxis, methods of diagnosis, etc. And this is the type of material which is of value to the student and to the physician.

The book also contains chapters on pathogenic protozoa, the bacteriology of air, water, milk, soil, plants and the industries.

Some additional matter has been inserted in this edition in order to bring the book abreast with advancements along bacteriological lines. Especially to be noted are the sections on typhus fever, the Schick reaction, mouth entamebae, and Hodgkins disease.

Numerous references are given throughout the book, which are of great value to anyone who might wish to go into the literature of any given subject.

J. T. M.

The Newer Methods of Blood and Urine Chemistry. By R. B. H. Gradwohl, M. D., Director of the Pasteur Institute of St. Louis and the Gradwohl Biological Laboratories, St. Louis, and A. J. Blaivas, Assistant in the same; sometime Technician in Pathological Chemical Laboratories, New York Post-Graduate Medical School and Hospital; and former Assistant, Chemical Laboratory, St. Luke's Hospital, New York City. Octavo, 240 pages, with 65 illustrations and 4 color plates. Cloth, \$2.50 net. C. V. Mosby Company, St. Louis, 1917.

This work represents a laudable effort to emphasize, particularly for the clinician, the pronounced and growing practical importance of quantitative chemical examinations, especially of blood, and also of urine. The field of biochemical analysis on moderate or even small amounts of blood has developed within only a few recent years. The laboratory worker will here find described, in practicable detail, a well selected series of quantitative methods. The book is divided into Part I on Technic of Blood Chemistry, twelve chapters, Part II on Chemical Analysis of Urine, twelve chapters, and Part III on Blood Findings and Their Interpretation, four chapters, respectively on blood sugar, acidosis, blood changes in gout, blood chemistry and nephritis.

It lies in the nature of the development of this subject that the methods used are largely colorimetric. It is perhaps unfortunate that the authors have so chosen their methods that the tables and technic described, apply exclusively to the Hellige colorimeter, as many laboratory workers would appreciate an additional description of the standard methods recently developed to a high degree of perfection with the very extensively used Duboscq instrument.

No minor criticism however should be permitted to obscure the fact of the admirable simplicity of method and the directness of presentation in the, to many clinician's, difficult or unfamiliar field of quantitative chemical analysis of blood and urine. The day has now arrived when biochemical progress has made it possible to make a clinical utilization of the chemical findings on the patient's condition. This is an eminently practical and useful book for that increasing number of workers who desire to avail themselves of the important results of recent biochemical development in their practice of medicine.

A. W. P.

Health Work and Rural Sanitation.

Chauncey F. Chapman, M. D., Supt. of Health,
Lincoln.

Vital statistics are the indispensable basis of public health work. The fact is not sufficiently recognized among health officers, who not infrequently regard the annual report with its necessary tabulations as formal rather than useful. On the contrary, public health work can no more be directed intelligently without statistics than can a business be conducted without figures for income and expenditure, profit and loss. Instead of being regarded as a mere formality and history, vital statistics should be the constant basis of public health work. This work must be supervised by one of experience in that particular field. There is no reason why Nebraska should not be included in the U. S. registration area. At this time there are twenty-three states so registered. With the expenditure of a comparatively small amount of money and proper effort Nebraska may be

placed on the map at the Census Bureau in Washington, D. C.

Our more progressive cities are rapidly realizing that money spent in health work is money well spent.

Too much should not be expected from cities, towns or states when insufficient funds are provided. Efficiency from the point of health service should be graded in proportion to the amount of funds available to work with.

Experience proves that fifty cents per capita is the minimum amount from which we can expect reasonably satisfactory results in public health work. Communities which appropriate fifty cents per capita or more to health work are attaining efficient results.

Nebraska has been severely criticised in connection with the amount of health work performed. There is apparent justification for such criticism.

The larger cities are adopting and have adopted modern methods for carrying on work that pertains to public health matters and are making a good showing in accordance with the equipment they have been able to procure. We hardly need to allude in detail to health matters as enforced in the larger cities of the state. It is the rural districts that need our attention and help.

The foundation of perfecting the control of communicable diseases lies first in education and second in close attention to school inspection. I believe that the most important duty of the head of any health work is to acquaint the apparently non-interested public with irreputable facts pertaining to health matters. Next comes his ability as an executive, and thirdly and of utmost importance his capability to differentiate diseases that are closely allied so that there will be the least possible time elapse between the on-coming symptoms of the disease and complete isolation.

In order to accomplish the best work in preventative medicine it is necessary to have the co-operation of the parents more especially the mothers. Take for instance measles, whooping cough and chicken pox; it is prac-

tically impossible to control these diseases without the interested assistance of the mothers and the help of school inspection. Every child becoming ill should be considered as having some one of the contagious diseases and be isolated until investigation proves to the contrary. Most of us are familiar with methods used in handling communicable diseases, so that part of the work requires no special attention at this time.

Too little attention is given lobar pneumonia. Lobar pneumonia is a communicable disease and is the cause of ten per cent of the total number of all deaths. Seventy per cent of the cases occur between December 1st and May 1st. It is distinctly a cold weather infection and corresponds to the closed window season. Poor results have been attained from the use of anti-pneumococcus serum because of its not being applicable to all types of the disease. Research has shown that there are four types or groups of pneumococci found in pneumonia. Pneumonia is on the list of reportable diseases. I believe that authorities should be strict about enforcing the ordinance requiring that the disease be reported. Modified quarantine should be established, and it is a question whether or not cases should be terminated by a microscopical examination of the sputa.

The utmost importance exists in preventing communicable diseases, not only because of the immediate danger to the patient but more important still is the debilitating effect these diseases have upon different organs that in later life are likely to develop into chronic organic diseases.

In cities the public health nurse is one of the most valuable adjuncts to efficient health work. In some of the larger cities male inspectors are being displaced by the public health nurse. Public health experience has proven that one public health nurse should be employed for every 10,000 inhabitants.

Rural sanitation should occupy a great part of the attention of the state health authorities. Most of all, people living in rural districts require better privies for the purpose of combating diseases and for their own comfort. Human excreta kills more people than any other poison. The privy should

not be less than two hundred feet from any well, spring, milk house, or stream, and then on a lower stratum of ground if that is possible. It is necessary in order to make a privy fly proof to install self closing covers over the seats and to bank dirt around the bottom so as to exclude light. Careful caring for these privies will to a great extent obviate contaminating neighboring streams. The protection of domestic water supplies is to the utmost importance.

There is much work to be done in bettering conditions around dairy farms as to barns, milk houses, standardizing and sterilizing necessary utensils, bottles, etc. The barn floor should be made of cement and provided with suitable drainage leading fifty feet from the barn, walls thoroughly whitewashed twice each year. Good ventilation which means plenty of light is essential. Manure should not be allowed to accumulate in the barn. A wagon with a manure tight box should be placed not closer than fifty feet from the barn. Leading from the barn to the wagon there should be an inclined board walk for wheeling and dumping the manure into the wagon. This wagon should be emptied every day so that the manure will not be allowed to remain in or within close proximity to the barn. The milk house should not be less than ten or fifteen feet in size. The size should correspond to the volume of milk handled. It should contain a can rack, bottle rack, two washing tubs, hot water, running cold water, bottling machine and milk cooler. The floor should be cemented and have a drain leading fifty feet from the milk house. The milk house should not be closer than twenty feet to the barn.

In order to accomplish satisfactory work in public health and sanitation it is necessary to perfect an organization. There exists a basis at the present time for such an organization. Each county should change the title of their medical appointee from county physician to that of county health officer. His appointment should be made with the understanding that he is to work and act in full accord with the State Health Commissioner.

The State Health Commissioner should keep fully posted on diseases and conditions existing outside of his state in addition to

those within. He ought to co-operate in full with the United States Public Health Service. The combined organization would consist of the United States Public Health Service, State Health Commissioner (aided by the state laboratory, bureau of vital statistics and engineer), County Health Officer, and wherever possible the assistance of the Public Health Nurse.

The County Health Officer should prove one of the most important adjuncts to this organization. He should be a full time employee. He should be placed at the head of the school inspection in his county; he should establish a public dispensary where any citizen could come and be vaccinated against smallpox, typhoid fever and register complaints; he should quarantine and acquaint himself with the source of communicable diseases in his territory and give necessary instructions and furnish popular literature on the disease in question. In addition to his work as health officer, he would look after the county dependents.

It would seem that some such an organization as this could accomplish much in the way of preventative medicine and sanitation.

Theories Concerning the Epidemiology of Anterior Poliomyelitis.

Mark W. Richardson, M. D.

According to the generally accepted theory, infantile paralysis is transmitted through the infected secretions and excretions of patients during the acute stage of the disease and convalescence, or of healthy intermediate carriers. Many of the epidemiological facts, however, do not support such a theory, nor is there reason to suppose that water, milk, or other food supplies are involved in the transmission of the disease. Unlike most contagious diseases, infantile paralysis is least prevalent in the winter, when schools are open and contact generally is most intimate. The disease occurs most frequently in the summer months, when the opposite is true. In some important respects, the virus of infantile paralysis resembles that of rabies. In the latter disease, although the virus is present in the saliva, a puncture wound is necessary for infection. The disease fails to spread in hospitals or asylums; it is rare among doctors and hospital attendants and unknown among laboratory workers. It does not spread in schools and it reaches its maximum prevalence in the country. The occurrence of more than one case in a family is rare despite the most intimate contact.

(The Journal of Nervous and Mental Disease, Feb., 1917)

That the disease is insect-borne has much theoretically to commend it. Inasmuch as the disease occurs in the winter time occasionally, even to the point of small epidemics, such insects as mosquitos and biting flies can with difficulty be regarded as intermediate hosts. The epidemiology of infantile paralysis has a number of resemblances to bubonic plague and the protection given by the rat to the flea would account for the persistence of winter cases. Indeed, the cat flea curve, as determined by Brues and Lyon, is practically identical with that of infantile paralysis in its seasonal character. Paralyzed animals oftentimes and indeed paralyzed rats rarely have been noted in neighborhoods infected with infantile paralysis. The disease occurs in foci, but its spread is too slow and regular to be explained by human agency. Rats migrate individually and en masse over long distances in comparatively short spaces of time, especially along modern routes of communication. In one instance at least, human cases seem to have had a very definite relation to a particular sewer system. Two children played with a dead rat and came down with infantile paralysis eight and ten days later. Such a history is characteristic of bubonic plague, which is known to be transmitted by the rat flea.

Animal experimentation with rodents makes it highly probable that if rats are responsible for infantile paralysis only the young rats are markedly affected and they probably rarely reach the surface. Infected fleas, however, from such young rats could easily be carried by healthy adult rats.

Whether the rat flea theory offers the correct solution of the problem of infantile paralysis will depend upon an immense amount of laboratory investigation. The unsatisfactory character, however, of the older contact theory of the transmission of the disease is becoming more and more established.

J. M. A.

SOCIETY NOTES.

The Lincoln Academy of Medical Science held its first regular meeting on March 15, 1917. The society was organized last month by some of Lincoln's younger medical men. The intention is to pay especial attention to the scientific side of medicine. The organization is subordinate to the Lancaster County Medical Society and all of its members are members of the latter. The officers are as follows:

Dr. George W. Covey, president.

Dr. J. E. M. Thompson, vice president.

Dr. Miles J. Breuer, secretary.

At the first meeting Dr. Arthur L. Smith read a paper on "Perleche."

Platte County Society.

Physicians are not immune from the high cost of living and in order to cope with it, members of the Platte County Medical Society at their quarterly meeting last Monday evening adopted a new fee schedule which will become effective April 1. It is a revision upwards in some respects.

Office consultation: \$1.00 to \$5.00.

City visits: 8 a. m. to 6 p. m., \$3.00; 6 p. m. to 9 p. m., \$4.00; 9 p. m. to 8 a. m., \$5.00.

Telephone advice: 8 a. m. to 10 p. m., \$1.00; 10 p. m. to 8 a. m., \$2.00.

Obstetrics: Minimum fee \$25.00 (which includes two subsequent visits. Extra visits at regular rates.)

Life insurance examinations: Minimum fee \$3.00.

Country visits: \$1.00 per mile or fraction thereof plus city fee.

Consultation: \$5.00 to \$10.00.

Vaccination: \$2.00.

Contagious disease at reasonable advance over regular rates.

The quarterly meeting of the Platte County Medical Society at which the new schedule was adopted was held at the Evans, the members taking dinner together and then holding their business session.

Webster County Society.

The Webster County Medical Society met in Red Cloud Tuesday, March 20, with ten members present.

Nance County Society.

The Nance County Medical Society met in regular session in Fullerton on March 6, 1917. There was a good attendance and it was a profitable and interesting meeting.

The principal topic was the H. C. L. and the general advance in all lines. It was determined to advance the mileage fee and also the charge for a professional call. Hereafter the fee for a call will be \$2.00 if in the day time and \$2.50 at night. In addition to this a mileage fee of \$1.00 per mile one way for the first three miles and 50c per mile, one way, for each additional mile will be charged for drives made in the country. An extra charge of \$1.00 will be made for all drives between the hours of one hour after sundown and an hour before sunrise.

It is understood that these prices are not as high in proportion as in other lines but it is hoped that they will prove fair and equitable in the future. Nance county is about the last in the state to make the advance.

Necrology.

B. F. Farley, M. D., York, Neb., died January 17, 1917.

Dr. W. B. Hoge of Grand Island died in that city March 4, 1917. Dr. Hoge had been identified with the professional and business life of Grand Island since the early 90's. He was graduated from the University of Michigan in 1886 and was for many years Union Pacific surgeon at Grand Island.

The announcement has been made of the death of Mrs. Mary B. Armstrong which occurred recently in Cleveland, Ohio. Mrs. Armstrong was the widow of

Dr. Armstrong, the first superintendent of the Institute for Feeble Minded Youth at Beatrice. She was a sister of the late Dr. Charles E. Bessey of the University of Nebraska.

An infection which started in her right arm caused the death of Mrs. F. A. LeMar, wife of Dr. LeMar, of Humphrey, at St. Mary's hospital, Columbus, Wednesday evening, March 14th. The alarming symptoms developed about two weeks ago and her condition became such that Dr. LeMar brought her to Columbus that she might be under the care of a local physician. The infection had developed to such an extent, however, that it could not be checked. Mrs. LeMar leaves one child, a son about ten years of age.

Nebraska Notes.

Dr. J. N. Campbell of Stamford will leave at an early date for Boston where he will take post graduate work.

Dr. E. F. Zoerb has disposed of his practice at Clarkson to Dr. F. G. Kalouch of Prague. Dr. Zoerb is now located at Leigh.

Dr. E. R. Leonard who has been doing relief work for Dr. Powell at Adams has left for St. Francis, Kansas, where he will locate permanently.

Announcement has been made of the marriage of Dr. William N. Anderson of Omaha to Miss Kittie Brooks of Rushville, a graduate of the Clarkson hospital.

Dr. Paul C. Geissler of Burchard was married recently to Miss Harriet Miller of Newport, Vermont. The wedding took place in Colorado Springs at the home of Dr. Geissler's parents.

Dr. L. T. Sidwell, graduate of the University of Nebraska College of Medicine, has been appointed second physician at the Ingleside hospital at Hastings. Dr. Sidwell succeeds the late Dr. Oaks.

Dr. R. W. Connell, health officer of Omaha, has been upheld by the District Court in his contention that so-called internal vaccination is inefficient and will not be recognized by health authorities. The Douglas County Medical Society strongly endorsed Dr. Connell's stand in this matter.

Dr. A. P. Fitzsimmons and family of Tecumseh who have been in the Philippine Islands for several years are scheduled to return to the United States early this summer. Dr. Fitzsimmons' term of office will expire in October, but it is considered likely that he will remain in the service of the government indefinitely.

On February 23 the regents of the University of Michigan adopted a resolution confirming the union of the University with the Detroit College of Medicine and Surgery. The terms of the merger are that the latter shall turn over its charter, real estate, equipment and hospital privileges to the university and that a fund of a million dollars will be raised for the development of the University of a graduate school of medicine in Detroit.

Dr. P. H. Bartholomew of Blue Hill has returned from service with troops on the border.

Dr. C. J. Miller has just returned to Ord after an absence of approximately a year devoted to post graduate study.

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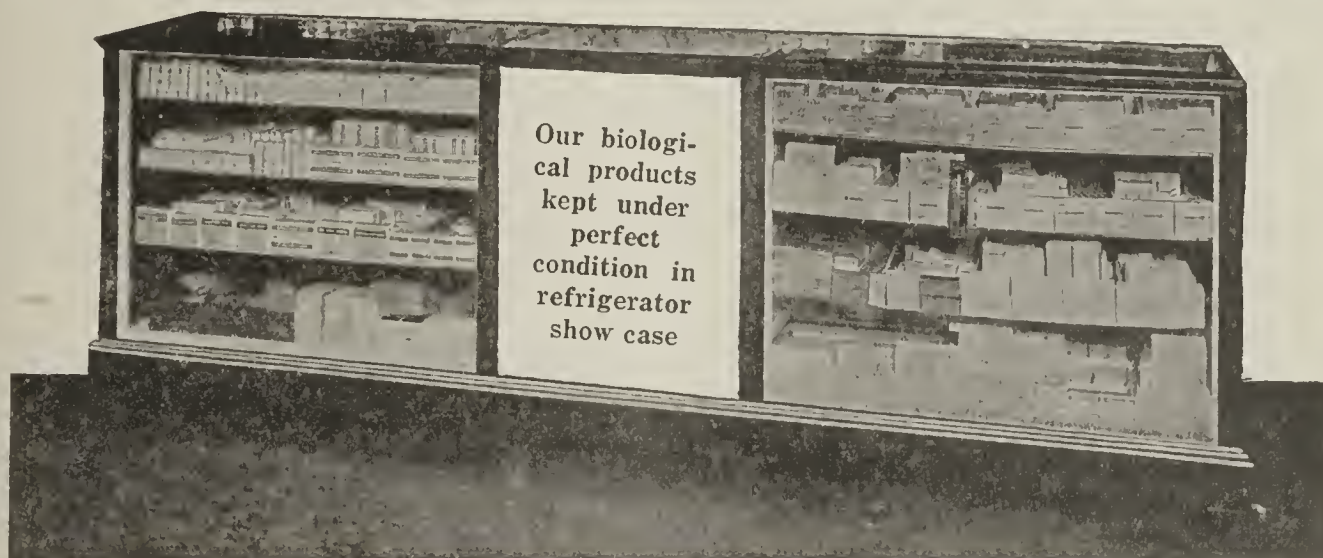
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THE NEBRASKA STATE MEDICAL JOURNAL



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President's Address.*

Nebraska State Medical Association

W. F. Milroy, M. D., Omaha.

The consciousness has been growing upon me during the past year that it is a mighty big honor to be given the presidency of the Nebraska State Medical Association. If the whole period of its existence were repeated, a thousand years would have to be added to enable each one of the present members to hold the office. I therefore desire to express to you my heartfelt appreciation of the great honor and to thank you for your kindly consideration.

In addressing you today I shall review as briefly as possible some of the more important events of the year, offering a few comments and suggestions. I must also add a word as to our duty for the future.

For the operations of the past year a number of committees were appointed by order of the association. Now, it would seem that

if certain of our members are willing to give of their time in our service we should at least be willing to relieve them of necessary incidental expenses. There has been no money available for this purpose and the desired work has not been accomplished except at some financial cost to the committees themselves.

One very important enterprise which the association is conducting is the medico-legal defense. I find that this protection is most highly valued where it has been longest in operation; is most highly developed and most strongly supported. For instance, in Iowa the members of the association are very enthusiastic upon this matter. They depend upon it absolutely and they see to it that sufficient funds are provided to permit their committee unhampered to fight any case to the last ditch. Thus, each of their two thousand members contributes to the treasury of their association, for the journal \$1.00, for general expense \$1.00, and for the defense \$3.00. When you have made it a matter of common knowledge that a thousand doctors

*Read before Nebraska State Medical Association, Lincoln, May, 1917.

are defending every member of this association from blackmail and malicious law suits the effect must go far to discourage unprincipled lawyers, for the sake of a contingent fee, from advising ignorant and evil-minded persons to bring baseless suits against our members. But when these people realize that the financial resources of a thousand doctors are at the disposal of each, you will find quack lawyers concluding that this is altogether an unpromising field for the exercise of their devilish practice. The chairman of the committee informs me that as nearly as may be estimated the total sum available for continuing this work during the coming year is about \$1,350.00, which is an amount quite too small for safety.

It is with joy and pride that I refer, at this time, to our journal. Neat and attractive in appearance, artistic and correct in its make-up, clean and ethical in its morals, dignified and forceful in its relations both to the public and the profession, it is an honor to this association. The pleasure we have in its possession is no doubt greatly enhanced by all the vicissitudes through which we have wandered before arriving at this goal. For this great pleasure and for the success of the journal I am confident I express the unanimous sentiment of all of you when I thank and congratulate the publication board, the editor and his assistant and the business manager for their splendid achievement. It must not be forgotten, too, that we are indebted in no small measure to the printer. This is a big event in the history of our association. I am not making claim that the journal is perfect. I know that those who have produced it would be the last to make this claim. I do pronounce it a great success. Our publication board has pursued the safe policy of cutting the garment according to the cloth and I have a suspicion that they have been unduly cramped for funds in reference to the business management. I am lead to believe that by the expenditure of a comparatively small additional sum of money the journal can be materially improved. It should also be somewhat increased in size. I would like to have you consider the question of making some increase in the fund provided for this purpose.

It is in the highest degree desirable that every physician in Nebraska who is eligible, should be a member of this association and it is our ambition to make this membership so desirable that none can afford to remain outside. Indeed, it is my own conviction that this has already been accomplished. To a considerable number the annual expense is a matter of some consideration and this should never be so large as to exclude anybody. At the same time it must be remembered that no considerable business can be conducted without commensurate cost. We have come to be a body of such size and character that we should exert a tremendous influence in Nebraska to the advantage both of ourselves and the entire commonwealth. In my judgment it is a fact beyond dispute that we must have a little more money if the proper work of the association is to be carried on in a creditable and satisfactory manner. I therefore suggest that you increase our annual dues by perhaps one dollar, or such amount as will meet such difficulties as those mentioned.

Until one has been confronted with the privileges and the duties of the office of chief executive of this association he can not appreciate its responsibilities and difficulties. The latter are immensely greater because of the fact that the average member has really very little acquaintance with the affairs of the association. This does not imply a lack of interest in it. We are busy people. We therefore commit the work to the care of the few and dismiss it from our minds. To meet a similar difficulty in a magnified form the American Medical Association established the office of President-Elect. A number of state associations have followed its example. By this means the next executive is given a year in which to qualify himself for his future work by which means he will be able to do it with greater credit to himself and advantage to the association. I would recommend that this be made the plan of the Nebraska association.

Another surprise that awaits the person who shall make a close study of our affairs has reference to the office of secretary. So great a variety of questions, such a multiplicity of detail is heaped upon this helpless indi-

vidual as would absolutely overwhelm any one not familiar with the routine requirements of his office. At these annual meetings the association, the Council and the House of Delegates, all of us have a mighty easy way of disposing of bothersome and tedious work. We simply say: "Let George do it." Now, "George" is the secretary. I shall not consume your time by reciting a catalog of the varied and almost endless items, but I am sure enough that any one of our members who shall find himself confronted with the management of this office unaided and inexperienced, will be simply swamped. It has occurred to me that some day, from one of several causes, this very thing may happen. I therefore believe it would be a wise thing to do to provide an assistant secretary, to be elected or appointed in such manner as our governing bodies shall determine. This officer will not only somewhat lighten the burden of the secretary, but he will become acquainted with the details of the office and perhaps be the means of safeguarding our business in the absence or incapacity of the secretary.

It may fairly be said that the most difficult undertaking which this body proposed for itself during the past year was the plan to secure such legislation as would result in a reorganization of the public health laws of the state in such a way as to place Nebraska in line with other progressive states, in respect to these matters. In addition to the standing committee upon public policy and legislation, provision was made for a special committee charged with the duty of undertaking this job. Your president feels that he was exceedingly fortunate in enlisting the services of the men who have served upon these committees. They have labored with untiring and self-sacrificing zeal against strenuous and well-organized opposition. With the cooperation of others, whose aid they were able to secure, their well-directed efforts were rewarded with success. The result is the passage of what has been known as "The Fox Bill" which is now a law of the state. This law embodies the substance of what was recommended by this body a year ago. I feel that we can not overestimate the far reaching and lasting good that shall come

to the state from this legislation. In behalf of the Nebraska State Medical Association and in behalf of the entire state of Nebraska I desire now, publicly to congratulate our committees and to thank them for this splendid service. I know you would consider me remiss in my duty and I would forego a very great personal pleasure did I, in this connection, refrain from voicing our sense of appreciation of the attitude of His Excellency, Governor Neville. As citizens of Nebraska and as a profession we are all honored by such an executive. It is a happy day for a commonwealth when its affairs are guided and its interests protected by one so broad minded and so wise. Without his help we could not have been successful in this undertaking. Among the splendid things he has already accomplished, in the short period of his official life, the securing of this legislation is by no means the least of those for which he will ever be held in the highest esteem.

The state medical association of Colorado has shown us an act of courtesy which it is a pleasure to bring to your attention. An invitation came to us to send a fraternal representative of the Nebraska association to participate in their annual meeting by the presentation of a paper. At my request Dr. John E. Summers, of Omaha, has promised to represent us upon that occasion and I am sure he will do so in a manner in every respect satisfactory to all concerned. Now, this gracious act of our neighbor certainly calls for a response in kind. Such courtesies, it seems to me, are highly commenable upon the part of organizations such as these. I appeal to the council to make suitable response to the Colorado association.

I shall not occupy your time further by reference to the activities of our association during the year. You shall receive reports of the several committees covering the matters committed to their care. Enough has been said to show that we have not been standing still but on the contrary have made material and valuable progress.

But what of the future?

Members of the Nebraska State Medical Association, our glorious America is in a

state of war. I need not recount the injuries and insults to which we were subjected before our president felt that the American nation realized that the limit of endurance had been reached. Too many of the people had been utterly dead to a recognition of the fact that there are principles upon which this nation has been founded which we are under obligation to maintain. They said that when a mad dog runs amuck it is the part of safety and of wisdom to keep behind closed doors. I know a young woman in Omaha who had a bull terrier, well-bred, remarkably intelligent and highly prized, that went mad one beautiful summer afternoon. The neighborhood, though populous, was at the time deserted. Having been informed by telephone of the condition of her pet, did she lock the door and play safe? Hardly. She realized that not more than a hundred yards distant was a public school full of small children who would soon be released for the day. She opened the basement door of her residence and without hesitation went alone to capture this blinded and unreasoning menace. Frothing and yelping and snapping at objects indiscriminately the dog was rushing here and there. His mistress coaxed and scolded and threatened as he madly tore past her, sometimes so close as to brush her clothing. Slowly she guided him toward the open door and finally he dashed within where he was later shot. Was this young woman a fool because deliberately she faced the jaws of death, when, had she chosen to do so, she might have remained in safety? Or did she exhibit wisdom and a correct estimate of relative values when she chose the divine quality of self-sacrifice, esteeming duty more highly than life? A mad dog among the nations for more than two years has been raging lawlessly, snapping at foe and friend alike and threatening the very foundations of the free institutions of Christian civilization. Nobody has failed to recognize the fine qualities of this nation. Few have grasped the significance of the principles for which it stands when these principles are worked out to their legitimate end. For the past two years and more the world has been groaning under a demonstration of what they mean. Fellow citizens, we all admire "efficiency", but we glory in our liberty. At last we have been

aroused to respond to the call that has been so long ringing in our ears. We have undertaken to do our share in the task of subduing the mad dog. We are hoping to restore ourselves to a position of self respect. Our government is proposing to organize a large army. The initial installment of this force will be at least a half-million of men. I am informed, as I believe from a reliable source, that such an army will require the services of all medical officers now in the regular army, the national guard and the medical reserve corps. These figures do not take into account the needs of the navy, which are almost as great and quite as urgent as those of the army, or of the volunteer forces or the one thousand surgeons that it is proposed to send across to aid our French and British allies. We have to look back no further than the time of our own Spanish war to see a demonstration of the calamity that befalls an army that has no proper medical care. Our boys are to be mobilized for the defense of righteousness and justice and liberty upon the earth and of the very existence of our nation. It has ever been the glory of the medical profession that selfish considerations have been subordinated to the needs of suffering humanity. It has not feared or turned back from "the terror by night nor the arrow that flieth by day, the pestilence that walketh in darkness nor the destruction that wasteth at noonday". It is no small thing that our country is asking from its physicians now. The requisite number is not going to be supplied when those physicians have volunteered who are recent graduates not yet located and older men who, for various reasons, are foot loose. There is absolute need, a profound necessity, that in great numbers we shall feel this call of duty and respond promptly. Personal convenience must not rule us. Financial loss must not hold us back. If only I could be given the tongue of fire to adequately voice this call! It was the Divine Physician who set the pace which this present hour commands us to follow. Since it is the salvation of the human race that is ours to effect no less exalted an ideal can suffice. The call is the call of the ages. It is the call of the human race. It is the call of all history. It is the call nearest the heart of every true physician. It is the call of God. Our

boys are about to offer their lives. The nation takes hold of them and adapts them to her use. These are our choicest sons, "Our jewels." Shall it be said that Nebraska physicians provided insufficiently or grudgingly for their care? I am jealous for the fair name of our profession in Nebraska and yet I am confident that with a realization of the magnitude of the need that confronts us an overwhelming sense of duty will become supreme and our Nebraska profession will respond with the full measure of devotion.

The New Health Department of Nebraska.

E. W. Rowe, B. Sc., M. D., Lincoln.

The Fox Bill is now a law. It called for a reorganization of the Public Health administration in the state. Nebraska had been operating since territorial days under emergency measures. This law virtually means a new Health Department. Students of public health have long recognized the need. It required not only measures to surmount the constitutional difficulties, the formulation of broad and far-reaching laws, but leadership to bring together all the forces recognizing the public need.

The Nebraska State Medical Association contained in its organization the potential strength and the capacity for wise leadership to give unity to purpose and action. Two years ago the Committee on Public Policy and Legislation laid down the principle that all constructive propositions for legislation must first come before the society for its endorsement. One year ago it presented a plan for a new Health Department which followed the recommendation of Dr. Fox, of the United States Public Health Service. This plan the Association unanimously adopted. It instructed the regular committee on Public Policy and Legislation to work to this end. It created a special committee whose sole business was to obtain the necessary legislation. They have worked in unison in the education of the medical profession and the public at large. They obtained the endorsement of every civil and social body in the state whose objects are in the direction of public welfare. Practical politics, no less than the pursuit of theories, have been suc-

cessfully followed up. The executive officers of the state, in the old administration as well as the new, joined in the effort to make the members of the last legislature see and grant the necessary laws.

The outcome has been a complete success. With a few minor exceptions, the bill as passed and now on the statutes to guide the administration of public health follows the recommendations of Dr. Fox and the exact wording of the bill as drawn by the Nebraska State Medical Association. As time goes on it will no doubt be found necessary to change some of the measures. But we have laid the foundations of a Department of Health which will stand for many years.

Our work is not yet completed. It is to our cooperation that the personnel of the department looks for assistance. We must help to obtain capable and efficient men for the administration of its functions; we must insist that such men be chosen. No appoint-



DR. GEO. W. RENEKER, Representative, Falls City.

ments have as yet been announced. But it is hoped that the board of health will seek for the head of the department a man from out of the state who has had special training in public health administration. There

are none in Nebraska who have spent the necessary time in preparation for this great field.

The burden of increasing the standards of medical education in the state will rest largely on the advisory board. They constitute the examining board, and virtually control licensure in Nebraska. All will admit the need of raising our standards. While all the states around us have raised their requirements for entrance into medical colleges, Nebraska still admits high school credentials as a sufficient preliminary requirement. This can and must be altered.

A brief review of the new law follows, beginning with a diagram which shows at a glance the correlation of every person employed in the department.

1. The State Department of Health consists of the Governor, Attorney General and Superintendent of Public Instruction.

2. The bill takes effect the latter part of July.

3. The powers of the Department of Health are:

- To enforce all public health laws.
- To inspect medical colleges, and give them proper standing.
- To grant licenses after examination by the Advisory Board.
- To make rules by executive action not conflicting with law.
- To delegate power to any person or advisory board.

4. The duties of the Department of Health, in addition to those specified by law, are:

To secure and maintain in all parts of the state, birth records and notification of reportable diseases.

To educate the public by means of literature, lectures, exhibits and moving pictures.

5. The Commissioner of Health:

To be the deputy executive head of the department. The board itself is the executive head.

Salary, \$3,000.

Five years must have elapsed since graduation from a well recognized medical school. Must be licensed or eligible to license in Nebraska, and an expert in public health.

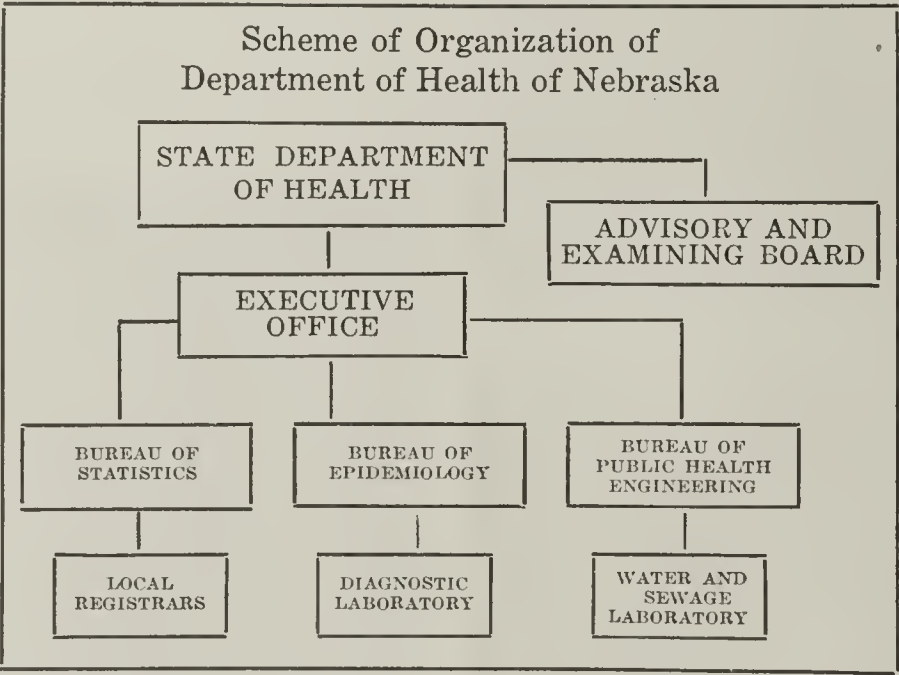
Appointment is by the Board of Health for four years.

6. Advisory Board:

Consists of four members, two regulars, one so - called homeopath and one eclectic.

Appointment by the Governor.

To give aid and counsel only when called upon by the Board of Health.



To examine and license physicians to practice.

The income from licenses granted is used in lieu of salaries.

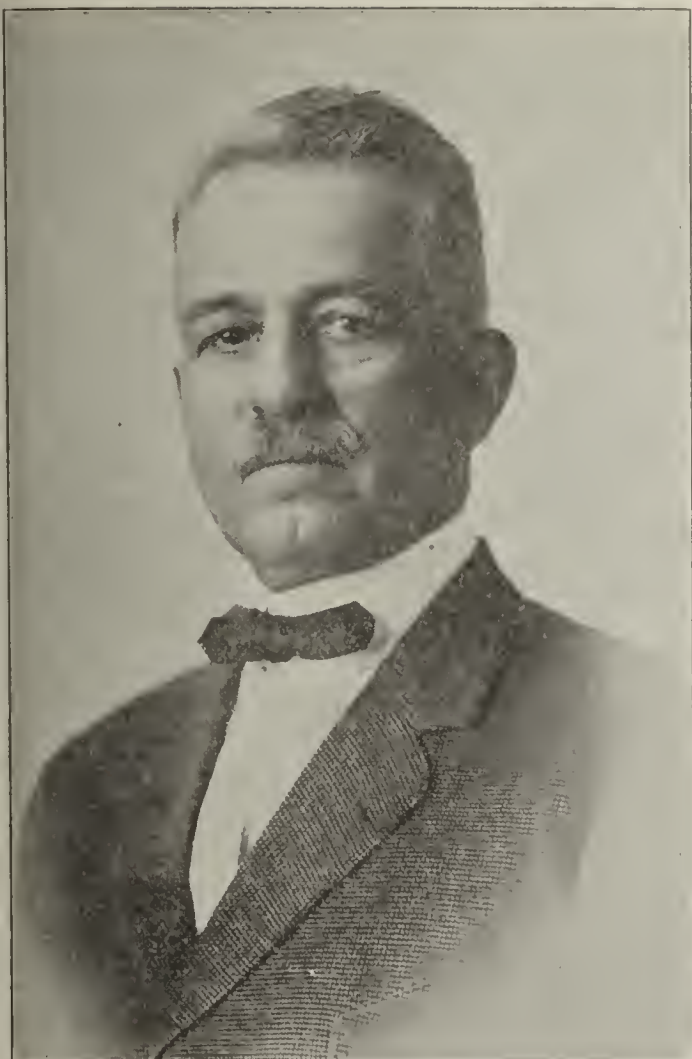
Terms of office, four years.

7. The Epidemiologist:

Appointment by the Department of Health. A graduate of a well recognized college.

Eligible to register or registered in Nebraska.

Salary, \$2,500.



SENATOR JOHN MATTES, Nebraska City.

Term of office, four years.

Duties the same as the Health Inspector now fulfills: To collect morbidity reports, control preventable diseases, direct the diagnostic laboratories, and supervise the activities of local health officers.

8. Statistician:

Not necessarily a physician.

Appointment by the Department of Health.

Term of office, four years.

Salary, \$1,200.

To record births and deaths, marriage and divorce statistics, and to compile public health literature.

9. Sanitary Engineer:

Term of office, four years.

Salary, \$2,000.

Responsible for water supply, garbage,

trade wastes, a laboratory for the analysis of water and sewage.

10. The Laboratory:

To consist of two divisions, one for (a) diagnostic purposes; and one for (b) water sewage. The first is to be under the Bureau of Epidemiology; the second, the Bureau of Engineering.

Bacteriologist, salary \$2,400.

11. Other attendants:

	Per annum
One laboratory attendant.....	\$ 840.00
Four clerks and stenographers.....	3,370.00
Maintenance	10,000.00
	\$25,300.00

12. Wherever the name State Board of Health is used, it shall mean the State Department of Health. Wherever the name Medical Examining Board is used, it shall mean Advisory Board.

Summary of principles:

1. Correlation, and an executive head.

2. Authority centralized, and responsibility resting on an executive head—the Health Commissioner.

Three committees should receive credit for leadership in this movement, which has had such loyal support by the members of the Nebraska State Medical Association. Their personnel is as follows:

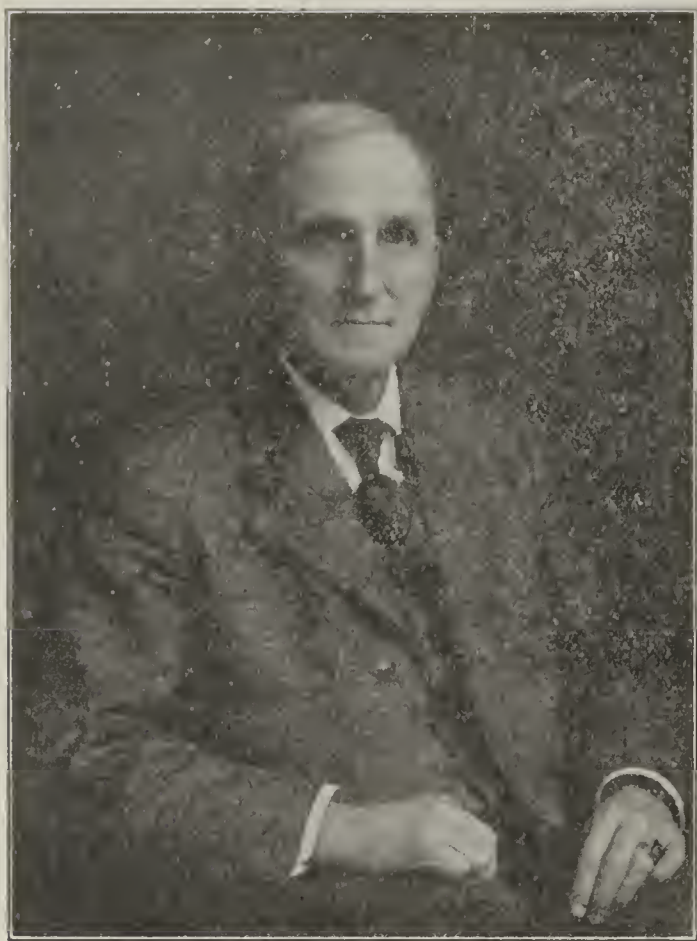
Special: E. W. Rowe, W. H. Wilson, I. H. Dillon, J. P. Lord.

Regular: C. L. Mullins, E. W. Rowe, H. E. Mantor.

Lancaster County Medical Society: J. J. Hompes, K. S. J. Hohlen, B. F. Bailey.

Senate File No. 60.

A Bill for an act to establish the state department of health, to provide for its powers, duties, officers, assistants and procedure, and to repeal Sections 2710, 2711, 2712, 2713, 2714, 2715, 2716, 2739, 2741, 2742, 2850, 2851, 2852, and 2853, Revised Statutes of 1913, and all acts and parts of acts in conflict herewith.



DR. H. J. WHITE, Representative, Ainsworth.

Introduced by Senator John Mattes of Otoe. Introduced and read first time January 18, 1917. Read second time January 19, 1917. Referred to Committee on Medical Societies. Sent to printer January 19, 1917.

Be it Enacted by the People of the State of Nebraska:

Section 1. The state department of health shall consist of the governor, attorney general, and superintendent of public instruction. The governor shall be ex-officio chairman of said board, and the state superintendent shall be secretary.

Sec. 2. Said department shall meet upon the call of the governor as often and at such times as the governor may from time to time designate.

Sec. 3. Within thirty days from the time this act shall take effect the state department of health shall appoint a state health officer who shall hold office for a period of four years, unless sooner removed for cause. Such officer shall receive a salary of not less than three thousand (\$3,000) dollars per year, and shall be the deputy executive officer of the state department of health. He shall be a graduate of at least five years standing from a well recognized medical college and registered or eligible to registration in Nebraska. He shall have had experience in public health work and shall receive his appointment from the state department of health.

Sec. 4. There shall be an advisory board to the state department of health, consisting of four mem-

bers who shall be graduated physicians of at least seven years consecutive practice; who shall be at the time of their appointment actually engaged in practice in the state of Nebraska; one of whom shall be appointed for the term of one year, one for the term of two years, one for the term of three years, one for the term of four years, and thereafter appointments shall be made for four years as these appointments expire, unless the appointees are sooner removed for cause. Two of the members of this advisory board shall be physicians of the so-called regular school, one of the so-called eclectic school, and one of the so-called homeopathic school. The governor shall appoint each member of the advisory board and shall fill all vacancies on said board.

Sec. 5. The advisory board shall, when called upon by the state department of health, give counsel to said state department and meet with said department when so requested.

Sec. 6. The state department of health shall have power and it shall be its duty, to see that all the provisions of this act and all other acts relating to the public health and sanitation of the state are strictly enforced, to summon witnesses and take testimony in the same manner as witnesses are summoned and depositions taken under the code of civil procedure, or to delegate the same to the advisory board or other persons at its discretion. The department of health shall have power to grant certificates as provided by law, and to cause to be prosecuted all violations of the health and sanitation laws



DR. WILLIS WILSON, Senator, Curtis.

of the state. The department shall have the right at all times to inspect the equipment and methods of teaching in all medical colleges and medical schools of the state, and shall have the power to refuse examination to the graduates of any school, which on proper notice and hearing, shall be adjudged not a medical college or a medical school in good standing, as defined by law of this state. The department shall have and use a common seal and adopt all necessary rules, regulations, and by-laws not inconsistent with the constitution and laws of this state or of the United States, to enable it to perform its duties and to transact its business. It shall have power through its deputy officer to perform any and all of its duties and to call to its assistance the advisory board or any other person thought fit; except that the examination for licenses to practice medicine shall be conducted by the advisory board.

Sec. 7. A majority of its members shall constitute a quorum of the department of health.

Sec. 8. There shall be organized under the authority of the state department of health a bureau of epidemiology, a bureau of public health engineering and bureau of vital statistics.

Sec. 9. The bureau of epidemiology shall be placed in charge of the chief, who shall be appointed by the state department of health. Said chief shall be a graduate physician from a well recognized medical college and shall be registered or eligible to registration in the state of Nebraska and shall have had

experience in public health work. He shall hold his position for a period of four years, unless sooner removed for cause, and shall receive a salary of not less than twenty-five hundred (\$2,500.00) dollars per year.

Sec. 10. The bureau of public health engineering shall be placed in charge of a chief who shall be appointed in the same manner as the chief of the bureau of epidemiology, shall hold his position for a period of four years unless sooner removed for cause and shall receive a salary of not less than \$2,000.00 per annum.

Sec. 11. The bureau of vital statistics shall be placed in charge of a chief statistician, appointed in the same manner as the chief of the bureau of epidemiology, with the same tenure of office, and shall receive a salary of not less than \$1,200.00 per annum.

Sec. 12. The powers and duties hitherto belonging to the state health inspector under the law of this state are hereby made the powers and duties of the chief of the bureau of epidemiology. He shall also be responsible for the collection of morbidity reports, and the control of preventable diseases, the work of the diagnostic laboratory and supervision of the activities of local health authorities.

Sec. 13. The chief of the bureau of public health engineering shall be responsible for the activities concerned in the maintenance of the purity of water supplies, the disposal of sewage, garbage and trade wastes, and the laboratory work required in the analysis of water and sewage.

Sec. 14. The chief of the bureau of vital statistics is made responsible for the collection of birth and death certificates, marriage and divorce reports, and the compilation and tabulation of information relating to the public health.

Sec. 15. The state department of health maintain a laboratory divided into two parts, the diagnostic and the water and sewage laboratories. The former shall be a division of the bureau of epidemiology and the latter a division of the bureau of public health and engineering.

Sec. 16. It shall be the duty of the state department of public health, in addition to other duties provided by law, to secure and maintain in all parts of the state an efficient registration of births and deaths and official record and a notification of reportable diseases; to provide popular literature upon the different branches of public health and distribute the same free throughout the state in a manner best calculated to promote that interest; to prepare and exhibit in the different communities of the state public health demonstration, accompanied by lectures and moving pictures and in all other effective ways to prevent the origin and spread of disease and promote the general public health.

Sec. 17. The following schedule of personal salaries and expenses is hereby established as a mini-



DR. FRED HOFFMEISTER, Representative, Imperial.

mum equipment for the state department of health for the ensuing bienniums and for future bienniums:

1 state health officer at not less than \$3000 per annum				
1 epidemiologist	"	"	"	\$2500 " "
1 sanitary engineer	"	"	"	\$2000 " "
1 bacteriologist	"	"	"	\$2400 " "
1 statistician	"	"	"	\$1200 " "
1 laboratory attendant	"	"	"	\$840 " "
4 clerks and stenographers at not less than				\$3360 " "

construed to mean the state department of health, wherever it reads "medical examination board" it shall be construed to mean advisory board of secretaries.

Sec. 20. That sections 2710, 2711, 2712, 2713, 2714, 2715, 2716, 2739, 2741, 2742, 2850, 2851, 2852 and 2853, Revised Statutes of Nebraska for 1913, are hereby repealed.

Lincoln, Neb., April 23, 1917.

Editor Nebraska State Medical Journal:

Dear Sir:

I wish personally to congratulate the physicians of Nebraska on the victory that has been won in the interest of the people. The passage of the so-called Fox Bill means the probable divorcement of professional and sanitary matters from the ordinary political trend. It permits the study of the sanitary field in a specific systematic and scientific manner. It will make our records of world interest. It will conserve the health and interest of our people by reading from the results of the study of our epidemics and diseases the possibilities of a prevention and control.

I am more than proud to belong to the profession of Nebraska, who have been so absolutely united in this struggle for the public welfare, and equally proud that the passage of the law shows a recognition of our professional sincerity.

Believe me sincerely and fraternally,

Benj. F. Bailey.

Lincoln, Neb., April 25, 1917.

Editor Nebraska State Medical Journal:

Dear Sir:

Your suggestion, that some sort of a report on the outcome of the Fox Bill might be of interest to the members of our state association is certainly in keeping with the splendid enthusiasm for the bill's welfare shown by the entire profession. I believe the report of the standing committee and the committee on legislation will be both interesting and gratifying to every physician who not only believes that there is nothing too good for the profession but that there is nothing too good for which we ought not strive.

The Fox Bill is now a law, which fact relieves our committees of a load such as no man can realize who has not taken an active part in its furtherance. As one who has been on the ground floor since the inception of this movement, I take this opportunity to give honor where honor is due.

It is true that we have been particularly fortunate at this time to have had the loyal support of both Governor Morehead and Governor Neville. Also the speakers of both branches of our legislature, Dr.



DR. C. W. DOTY, Senator, Beaver Crossing.

Maintainance of health department including traveling expenses, laboratory expenses, printing, etc., at not less than.....	\$10000	"	"
Total.....	\$25300		

Sec. 18. The state department of health shall keep an accurate account of all its expenses of whatever nature in such form as to show the cost of maintaining any bureau, office, activity, or item upon brief examination.

Sec. 19. Wherever the term of, "state board of health," is used in Nebraska statutes it shall be

Hoffmeister of the house and Mr. Mattes of the senate have been staunch supporters of the profession, also we have had a splendid representation of medical men seated in both houses who have worked untiringly for this reform, to all of whom we owe unstinted praise.

For the above reasons and many more better left unstated, resulting in the greatest opportunity we have ever had and at a time when a lesser one would not have sufficed, the medical profession of this state has been led to a splendid victory. I say led because it is due to a man who nearly two years ago had a vision of some such legislation as this and its far reaching benefits to the state. It was he who presented the matter to Governor Morehead in such a way that the governor called upon the national department for assistance, which resulted in the Fox recommendations and the recently adopted Fox Bill.

Dr. E. W. Rowe, as president of our state society, made his presidential address a plea for the adoption of the Fox recommendations. He asked for and got a special legislative committee to work in conjunction with the regular committee on health legislation and public policy to see to it that these recommendations became a part of our law. He himself was chosen a member of this committee against his wishes; but, when the duty was undertaken, he literally gave up his time to the work for months. This has not only meant money but peace of mind and I am sorry to say the loss of friendships of many years standing; at least lost temporarily until these friends could see for themselves the splendid sacrifice that was being made for a principle which was nothing less than altruistic in its hoped for results.

Members of the profession, this has not been the work of one man but of hundreds of members whose push has counted at every turn of the wheel. Our concerted action, though most splendid in its achievements, would not have been possible and the unusual opportunity would have gone by unnoticed had not Dr. Rowe had the fighting courage of his convictions.

Yours fraternally,

J. J. Hompes.

Editor Nebraska State Medical Journal:

Dear Sir:

As a result of much effort on the part of many loyal physicians of Nebraska the present legislature was induced to enact legislation creating a board of health composed of full time men devoting all their time to public health matters and recreating the old board in a somewhat different form as a board of examiners. In securing this legislation we enjoyed the confidence, good will and intelligent practical sympathy of the governor as never before in the writer's experience. The governor's active interest in public health matters lends encouragement to those who know him that politics will count for little in these matters and that it will be his desire to

secure for our state the services of trained and efficient men in the health department. It is the writer's view that the present legislation is not the last word but that the measure, as far as it goes, is excellent and gives us a good foundation upon which to build in the future. It is, I am sure, quite satisfying to those who have had much experience in securing, or trying to secure, legislation along the line of matters medical. In recent years physicians have been more inclined to actively aid in securing improvement in medical matters in this state and it is a fact that legislators are coming more and more to give us a fair hearing. As to the benefits of the present health measure it would seem impossible to forecast it all but of many things that I think of one; that there will be a full time department of health devoting its energies to public health and it can and doubtless will organize the physicians of our state into a concrete organization to work for better health conditions. A large amount of educational work can be accomplished among the people. All this will in time help us to secure a larger body of men to meet the needs of the state. If physicians will do yeoman service in public health education and take a more active part in politics, as they should, there will be less difficulty in securing, in these matters, what the state is entitled to.

C. L. Mullins.

Tuberculosis—Early Recognition.

Grant Reeder, M. D., Fremont.

Early diagnosis is the fundamental principle in the prevention and treatment of pulmonary tuberculosis. Disregarding the economic and sociological conditions which are responsible for the present day prevalence of this disease we are confronted with one and only one principle and that principle is the recognition of tubercular lesions in their beginning stages.

From the time of Hippocrates this disease has been recognized and has held one of the foremost places among our death-producing maladies. During the many centuries of its existence many descriptions of its symptoms have been given and as early as 1780 we find works which present as accurately as do our present day writings the symptoms of pulmonary tuberculosis. These same works give a line of treatment which differs very little from our present day standards.

However, in spite of this early recognition and in spite of the continued application of these methods of treatment tuberculosis has continued to be one of our most prevalent

diseases and although certain of our larger cities seem to be cutting down the number of cases to some extent still our rural communities are giving us authentic statistics which prove that tuberculosis is as prevalent there as ever. Recent reports show that in the middle west at the present time there are over 500,000 cases of pulmonary tuberculosis.

Broadly speaking, early or moderately advanced consumptives get well; advanced cases die. To prevent the increase in advanced cases correct diagnosis is the only barrier. Correct diagnosis of pulmonary tuberculosis is not a matter of theories. It is rather a matter of facts the application of which should be within the power of every physician. Our problem is one not of cure of late secondary or terminal tuberculosis, but rather one of prevention and cure of very early tuberculosis at which time it is preventable and curable. Thus it seems to me that the keynote in the handling of this problem from the standpoint of the physician is contained in two words; viz. "Early Recognition."

Never in the history of the practice of medicine have we as physicians dealt so extensively with symptoms in the absence of physical findings. Today the surgeon is operating more and more for appendicitis basing the operation upon certain clinical symptoms, not waiting to find a mass in the right quadrant or signs of pus formation. In dealing with cancer the same rule is being applied; but how little has this rule been applied in the treatment of pulmonary tuberculosis?

It has only been within the last few years that we have come to a fuller realization of the importance of the recognition of clinical symptoms in the prevention and treatment of pulmonary tuberculosis, but we are fast coming to a realization of their importance. Our tuberculosis specialists, our sanatoria and fresh air hospitals are giving us information from year to year which proves conclusively that pulmonary tuberculosis in its early stages is a curable disease. While on the other hand these same authorities and our own experience teaches us that those late cases, or cases moderately advanced, can be helped little, if any, as regard to cure; al-

though, through the institution of proper sanitary methods, proper feeding, proper medication and an abundance of fresh air they can be given a few more years of life.

I do not believe tuberculosis is unrecognized in a very great number of cases but I do believe that many of our cases of very early tuberculosis are neglected by physicians who have suspected, or diagnosed the condition and because of that neglect those self-same cases have passed from a degree of beginning tuberculosis to the second, or terminal stages as the case may be. We as physicians are not to blame that all cases are not diagnosed in their beginning stages since two-thirds of our patients come to us—not to be examined for the possible existence of disease—but rather because they have aches or pains or some disease the severity of which is so great as to make medical attention imperative.

Our problem with tuberculosis, since it is one of early recognition, is of necessity a problem of the education of all the people to a fuller realization of the importance of seeking medical advice and of having thorough examinations at regular intervals throughout the year; and I am confident that these examinations can be carried on just as intelligently and just as beneficially in the large majority of cases by the attending general practitioner and family physician as they can by the so-called specialist. Dr. Cabot emphasized the importance of these systematic examinations at regular intervals and has emphasized the fact that medical centers will come more and more to be in vogue throughout the country; but it seems to me that it is not so much a matter of the necessity for medical centers as it is a necessity for more careful, systematic, pains-taking examinations by all our physicians whether they are located in a metropolis or in a hamlet. Our modern men are competent to recognize practically all conditions not belonging to the specialist. If they are not competent it is high time that they become competent in handling this disease.

The educational phase of this subject is a most difficult problem. Whether this can be accomplished merely by the use of literature

or lectures, I am unable to say positively but I believe that more good is being accomplished and will continue to be accomplished to educate our people to realize the importance of seeking medical attention for early pulmonary tuberculosis through the organization of county anti-tuberculosis societies, and through the cooperation of our women's clubs. In addition great good follows the use of visiting nurses who ascertain the exact conditions throughout the country and who acquaint the public with proper sanitary methods and the need of applying for early treatment.

The chief reason that tuberculosis has not been stamped out years ago is because of its slow invasion, low contagion and long drawn-out period of destruction. If tuberculosis were as rapidly fatal as is pneumonia, we physicians would not have this problem on our hands of educating the people to seek advice. But since we must educate them, and since it is our duty to be able to give a positive diagnosis in practically all cases, we must become better acquainted with the beginning symptoms. We must learn to deal with those symptoms as intelligently, as firmly, and as scientifically as we are dealing today with the symptoms of appendicitis, gastric ulcer or syphilis. Since it is to the general practitioner that most of our cases come in their very beginning, it seems to me that the greatest amount of reform in handling the tuberculosis problem must be gained through the general practitioner. Advanced tuberculosis does not often appear for medical treatment as a first offender. When we inform a patient, previously ignorant of the fact, that he is an advanced consumptive, our verdict nearly always presupposes that he has applied for treatment at an earlier stage without his disease being recognized.

So it may be stated that the early diagnosis of pulmonary tuberculosis consists in the application of certain principles and methods that will enable us to recognize the disease when a patient first applies for symptomatic treatment. Patients presenting the classical symptoms of fever, night sweats, hemorrhages, cough and attendant symptoms need no particular diagnosis. It is not with this group of cases that we as general practition-

ers are especially concerned although we will ever be confronted with many such cases. But we are rather interested in that group of patients who present the constitutional symptoms commonly designated as being run-down. That class of patients are easily tired, have lost color, lost weight, or are underweight. They have a general incapacity. Their appetite is poor and they present other digestive symptoms varying from slight dislike of food, simple erructation of gas, to actual nausea, vomiting and diarrhoea. As a rule this class of patients experience no definite pain, but in a few we find a slight ache or pain under one or both shoulders. A cough may be present or we may find simply a slight "hack." The amount of sputum raised may in these cases vary considerably from only a slight so-called catarrhal discharge to huge quantities. Repeated attacks of pleurisy independent of pneumonia in a young adult must always be regarded with suspicion. A hemorrhage of the lungs independent of heart disease is practically never due to any other cause than pulmonary tuberculosis.

A history of fistula, ischio-rectal abscess, otitis media or cervical adenitis is always suspicious. When any of these occur it is probable that the patient has some active tubercular lesion, especially if accompanied by the previously given symptoms of a run-down condition or of night sweats. When a patient gives a history of having had influenza, typhoid fever, bilious fever or some other fever the cause of which was not definitely known and since having that fever has not been in his usual good health but has rather felt tired out, weak, depressed and run-down, we should be upon our guard and should insist upon a complete physical examination. It is our duty as general practitioners to pay more attention to history taking and to the clinical symptoms and we should exercise our greatest skill, and our most careful work in an attempt to elicit those physical findings upon which we can positively base our diagnosis. Given a case with the above given symptoms of a run-down condition together with the history of one or more pathological processes before given our

(Continued on page 314)

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The State Health Department.

It is with much pride that we publish an account of the passage of Nebraska's new health law. Too much credit cannot be given to those members of the legislature who gave unstintingly of their time and energy for the passage of Senate File No. 60. The bill was introduced in the senate by Senator Mattes and simultaneously in the house by Dr. Fred Hoffmeister. The bill passed both houses and the senate amended bill was substituted for the house bill.

To the members of the special legislative committee and to the committee on legislation of the State Medical Association the hearty congratulations of the entire profession are due. It required a tremendous amount of perseverance to accomplish the desired result. The many members of the Association who gave of their time; those who contributed by letters to their Representatives and Senators—all share in the credit. That the state at large will be benefited goes without saying. Nebraska has now a health law that we may all respect.

The Governor as head of the Board of Health proper will exercise great care in choosing the personnel of the staff. Trained, competent men must be employed if the ad-

ministration of the law so splendidly outlined is to become a reality.

Medical Military Problems.

The growing realization that America is at war and is into it to the finish calls for serious consideration of the part the physicians of Nebraska are to play in the struggle. Already several medical units have been formed, one at the University of Nebraska Medical School and one among the profession at Lincoln. Several of the senior medical students at Creighton and Nebraska have been accepted in the army and several in the navy, while a large proportion of the hospital internes have joined one force or the other. Colonel J. M. Bannister, U. S. A. retired, who is practicing in Omaha has been assigned to active duty and is spending all of his spare time enlisting medical recruits for the regular army.

There are now approximately one hundred forty-five thousand doctors in the United States. A conservative estimate would show close to fifty thousand of these unfit for military service on account of age and physical disability. This leaves less than one hundred thousand able for military duty at the best. It requires seven thousand medical men for every million soldiers, so that if we raise two million men we must materially increase our medical practitioners in order to care for the soldiery and civilians.

When the government has actually begun definite plans for recruiting this large army the spirit of enthusiasm will run high in the medical schools but this must not deter the men in the lower classes from completing their course for in no better way can they serve their country.

Physicians who go will do so at great sacrifice but it is the duty of each and every one of us to face the question squarely.

Medical Men and the War.

The general plan proposed by the Council of National Defense and Surgeon General Braisted of the navy for a continuous session of all high grade medical schools has

been abandoned as a result of a Conference of Deans held in Washington Saturday, April 28, 1917.

Up to the present time the government has not formulated a definite plan for securing additional medical men for the army. Surgeon General Braisted secured the enactment of a special emergency law which permitted the enrolling of some eight hundred recent medical graduates for service in the navy. This quota has been secured from the several medical colleges of the country.

Recommendations from the Council of National Defense under date of April 29th include the following:

1. Medical schools should be prepared to graduate medical students promptly in case of need.

2. Medical schools should establish base hospital units on the so-called Italian plan.

3. Medical schools should be prepared to reduce their faculty to the minimum required for routine work in order to liberate a maximum number of men for enrollment in the Officers Reserve Corps.

It is pointed out that it is essential that the United States avoid England's blunder at the outbreak of the war in permitting the disorganization of the medical schools—student body and faculty. At the present time both England and France are in dire need of medical men and the disorganized medical schools are not producing a sufficient number of trained medical officers to supply the demand. This country must see to it that a constant supply of medical students shall be forthcoming and that plans are laid for no shorter period than five years.

All Nebraska medical men who can possibly be spared should enroll in the Officers Medical Reserve Corps promptly. To this end letters directed to Col. J. M. Banister, U. S. A., 400 Brandeis Theater Building, Omaha, will bring the desired information.

A Low Cost Dietary.

For the information of physicians to whom the publication "Science" is not available, and in conformity with the spirit of preparedness

which is in the air, we reprint from an article by Graham Lusk, the eminent bio-chemist, a "low-cost meatless dietary of high caloric value designed for a family of five persons, the father at work and the mother doing household work. Potatoes with their valuable alkaline salts, had to be excluded from the diet because of their prohibitive price.

Breakfast.

Corn meal mush, 1 fried (milk for children and corn syrup for adults).

Bread (or toast).

Oleomargarin.

Coffee (for adults).

Stewed prunes.

Orange juice for baby.

Luncheon or Supper.

Pork and beans 2 (bean soup for young children).

Bread.

Oleomargarin.

Tea with milk and sugar for adults.

Milk for youngest children.

Cereal coffee or cocoa for older children.

Sliced bananas with sugar. 3

Dinner.

Lentil soup. 4

Boiled rice. 5

Tomato catsup.

Bread.

Oleomargarin.

Tea for adults.

Milk for youngest child.

Dried apple pie with cheese for adults.

Dried apple sauce for others.

1. Or oatmeal, or hominy, or farina or buckwheat cakes.

2. Or creamed dried beef on toast.

3. Or stewed dried peaches or the bananas may be boiled in their skins.

4. Or potato, or bean, or pea soup.

5. Or spaghetti, or macaroni (with cheese) or baked split peas with bacon.

Tuberculosis—Early Recognition.

(Continued from page 311)

plain duty is to ascertain the pulse, temperature and lung findings.

Tachycardia is practically always present in cases of early tuberculosis and the tachycardia is out of proportion to the hyperpyrexia. A pulse of 85 to 120 is not uncommon even with the patient at rest in beginning tuberculosis and oft time the temperature will not be higher than 101.4 F at the same time but the temperature will show certain daily variations ranging from 97 F in the forenoon to 101.4 F in the afternoon. Thus it is of great importance that our patients should be taught the use of the thermometer and a daily record should be kept of the temperature taken at 9 a. m. and 4 p. m. together with the weight at regular weekly intervals. For our examination our patient should be stripped to the waist and he should be examined in a good light. We should make a careful inspection of the chest as a whole observing the excursion of the two sides, the apices of the lungs, the distance of the scapula from the vertebral column and the diaphragmatic shadow, or Litten's phenomenon. Upon percussion we should observe the pitch, duration and depth of tone in the various parts of the lungs. The point at which our earliest variations will be found is in the supra scapular regions where a note of short duration attended by a higher pitch indicates beginning consolidation. Babcock has emphasized that this note is often not found because of too heavy percussion and he emphasizes the importance of using only light percussion in eliciting it. Tactile fremitus when present is important but is not often elicited except in those cases where we find some old affection of the pleura. On auscultation a rale, present only on inspiration following a cough at the end of expiration, is often one of our earliest physical findings. This rale is heard in a great number of cases only over the acromion process of the clavicle, a sign which has been emphasized by Abrahams and which is best brought out by placing the bowl of the stethoscope over the acromion process of the clavicle and by drawing the skin around the bowl of the stethoscope.

I wish to speak of but one further clinical

finding in connection with the very beginning stages of pulmonary tuberculosis and that finding is the inequality of the pulse—a finding which is elicited by first comparing the two pulse with arms at sides and then by placing the arms above the head parallel to the long axis of the body and without bending the elbow when a comparison of the two pulse will show a diminution or absence of the pulse on the side affected by tuberculosis. This is a sign given only with one other pathological condition and that condition is mitral disease of heart and since mitral disease of the heart and pulmonary tuberculosis seldom if ever occur at the same time and since in mitral disease both pulse will be diminished, or absent, the differentiation can easily be made.

It has been my attempt to give the history, physical findings, and clinical symptoms of only those cases of very early pulmonary tuberculosis which apply to the general practitioner for advice. It would be a waste of time to go into the symptoms of secondary and terminal tuberculosis since it is my conviction that if we are to stamp out tuberculosis we must do so by recognizing it in its beginning. In our handling of children the use of the tuberculin test should be more extensively employed since it is of vast importance in all cases up to seven years and even in adults it should be more universally used since it gives us information regarding the activity of the pathological process.

The X-ray will afford us much valuable information if we will but interpret its shadows in conjunction with our physical findings and in practically all those cases where our clinical symptoms are suspicious and our physical findings are indefinite we ought to employ the X-ray and seek through its use to ascertain just how extensive an involvement we have in our lung tissue. The complement fixation offers us some hopes of being able to distinguish between clinical and non-clinical tuberculosis but it is not yet generally available nor have its limitations been accurately defined. If our observation of a patient shows no improvements of the symptoms or if we note that there is a continued loss of weight and slight rise in the temperature in the afternoons and the pulse is sufficiently

rapid, we are justified in calling that patient properly tubercular even though the physical findings do not show any active lung lesion or the sputum reveal tubercle bacilli. It is my belief that we have laid too much stress upon the subject of physical findings in the diagnosis and treatment of pulmonary tuberculosis and not enough stress upon the clinical symptoms.

Lawrason Brown has stated: "Symptoms are a better and more accurate guide to activity than physical findings." Symptoms without physical findings demand treatment while physical findings without symptoms require only careful watching. When we consider that there are at the present time some 500,000 consumptives in the middle west and that a great portion of these are receiving treatment for cough, bronchitis, indigestion, asthma, nervousness and kindred complaints, we cannot but be impressed with the importance of a more careful consideration of the very beginning symptoms and physical findings. If we as general practitioners will but apply the principle of **EARLY RECOGNITION** to all our cases of tuberculosis the time will not be far distant when we shall see a marked diminution in the number of cases of secondary and terminal pulmonary tuberculosis.

Acute Miliary Tuberculosis.*

Andrew J. Baker, M. D., Grand Island.

This is an acute, infectious disease, and according to Barker is due to the sudden overwhelming of the blood, with the formation of innumerable miliary tubercles in the different organs of the body.

The bacilli enter the blood through an eroded vein, or through the thoracic duct (caseous lymph glands). It may follow tuberculosis of the intestines and mesenteric lymph glands; of the medulla; of the adrenals, or of the genito-urinary system.

There are three forms, the typhoid; the meningeal, and the pulmonary.

Typhoid Form.

In the typhoid form the onset is often

very acute, with chill, vomiting, high temperature (which may be continuous or slightly remittent). We also find rapid pulse, cyanosis, delirium, which may be only slight at first, but increasing in severity. Death generally occurs in three or four weeks in coma. The absence of typhoid bacilli, retracted abdomen, small rapid pulse, palor, the sudden onset; the diffuse rales of both lungs, with joint and cerebral symptoms distinguish it from typhoid.

Meningeal Form.

In this form we usually find it affecting children ranging in age from two to five years.

We should carefully ascertain family history. Measles and whooping cough are sometimes predisposing factors. Child is emaciated, looks badly, suffers from constipation, is restless at night, fever, and vomiting without apparent cause. The pulse is rapid at first, soon becoming slow and irregular in character. Pain in the head, and child becomes dull, sleepy and delirious. The muscles of the neck are rigid. Pupils are usually irregular, abdomen retracted. We then have a stage of paralysis, pupils becoming dilated, facial paralysis, ptosis. Hemiplegia may develop and usually death in convulsions in two to four weeks. We may have a more chronic form and convulsions will be absent.

Pulmonary Form.

The symptoms, at first and often throughout, are very obscure. The patient complaining of weakness, inability to do the usual amount of work, loss of flesh, anorexia, nausea and headache. The bowels are usually loose for a few days. The temperature rises but is irregular in type, usually high in the evenings and much lower in the morning. The temperature may range from 100 to 103 at night and be only 98 to 100 in the morning. We usually find a trace of albumen in the urine and diffuse fine rales in both lungs, but physical examination of other parts of the body reveals nothing especially abnormal. Such cases are often thought to be enteric fever, though the absence of rose spots, nose bleed and abdominal distention (and characteristic diarrhoea) make a diagnosis rather uncertain. There is usually more palor and lividity of the face and more rapid

*Read before Hall County Medical Society, November, 1918.

breathing in proportion to the pulse and temperature and physical signs of the chest, than is commonly found in enteric fever.

Emaciation is progressive and rapid. Pulse rapid and feeble. Tongue dry with loss of appetite. The pulmonary symptoms become more marked, such as cough and scanty mucous expectoration. Rales become more diffused and more marked, and some cerebral symptoms usually develop; such as strabismus, unilateral ptosis, weakness of one limb, or twitching of the limbs, then coma and death.

Duration, usually eight to twelve weeks. However, the onset may be more acute, and early in the disease we may find considerable cough with sputum profuse, loaded with tubercle bacilli. In such cases the diagnosis is easily made by microscopical examination of the sputum. However we always find a retracted and tender abdomen. Temperature different from that of typhoid. Breathing comparatively more rapid than the pulse. Cyanosis, the face, lips, ears and cheeks being livid; the fingers shrunken and bluish. Drowsiness marks the later stages.

Diagnosis.

The insidious beginning and the comparatively rapid progress with fever easily lead us to confound this disease with enteric fever, or the symptoms of bronchitis. The points in favor of typhoid are nose-bleed, rose-spots, typical diarrhoea, distended abdomen and temperature record. Those in favor of acute miliary tuberculosis are retracted and tender abdomen, rapid emaciation from the onset, the mixed palor and cyanosis of the face, as contrasted with the pink flush and white face of enteric fever, and the rapidity of breathing, out of proportion to the other signs of illness. The occurrence of any cerebral symptoms, give a clue to the nature of the disease. Microscopical examinations will be of special diagnostic value. The pronounced pulmonary cases are more likely to be confounded with bronchitis or broncho-pneumonia.

Cases of broncho-pneumonia present greater difficulties, the physical signs are the remittent pyrexia and some cyanosis being common to both. Generally, the shorter dur-

ation, or the presence of rather decided areas of consolidation, will point to broncho-pneumonia but broncho-pneumonia may last long enough to be mistaken for tuberculosis. However, it may be suspected, if the symptoms are prolonged for several weeks, with increasing cyanosis and emaciation, joint and cerebral symptoms, with night sweats.

Prognosis.

It is believed by some that miliary tuberculosis may be cured. I believe such cases are rare, and the tendency would be in the absence of unequivocal evidence of tubercle bacilli in the sputum, that the cases cured, have been enteric fever or broncho-pneumonia.

Treatment.

The treatment is purely symptomatic and supporting. An abundance of fresh milk and cream, raw eggs, plenty of fresh air, sleeping in the open, etc. Great care should be exercised to sterilize all excretions.

I wish to report two cases which I think will be of interest.

Case No. 1. The last of September I was called to see a young man of 17 years of age. He had been under the care of a physician for about six to eight weeks. He had an attack of la grippe last April and said that he had been working since but had not felt very well. About eight weeks prior to my being called he had an attack of haematuria with tenesmus for about ten days, accompanied by a dull heavy pain in the region of the left kidney. There are eight children in the family, seven boys and one girl all in apparent good health.

Examination.

Temperature 101, respiration 42, pulse 105, retracted abdomen and tender to the touch; diffuse fine rales over both lungs, slight cough. Was not sleeping well, profuse night sweats for two or three weeks. Patient very much emaciated and weak, left wrist joint swollen and tender, hands shriveled and bluish. The urine contained pus, blood, albumen and tubercle bacilli. I visited the boy for six consecutive days, three visits were made at from 8 to 8:30 a. m. and three were made at 5 to 5:30 p. m. in order to note the temperature record. Morning temperature on three alternate days, 98, 97 3-5, 98 3-5. The evening temperature 101 1-5, 100, 102 1-5. I then told the family of the gravity of the condition, telling them if they wished to call another physician to do so. Dr. Johnson of this city was called in counsel and verified the diagnosis. The family then took the boy to Omaha where our diagnosis was con-

firmed. They were advised to bring the boy home as nothing could be done for him. I saw the boy twice after his return from Omaha. On my first visit after his return from the city his right shoulder and left elbow were badly swollen and tender and the boy insisted that I give him something to put him out of his misery. There are two special features in this case to which I wish to call your attention.

Oedema would appear in a joint and in a few days disappear and reappear in another joint. Also a peculiar purpura never before seen by me. The spots varied in size from that of a silver dollar to the size of your hand. They would disappear and reappear elsewhere on the limbs or body. He died 91 days from beginning of illness.

Case No. 2. Child 2½ years of age, was brought to my office. The parents said the child acted peculiarly, was restless at night, gritted its teeth and would not talk or play. The mother of this child lost two sisters from consumption. The child had the measles some three months previous, and had not been quite as well as before the attack of measles.

Examination.

Child emaciated, listless, pulse slow and irregular; diffuse rales of both lungs, muscles of the neck rigid, pupils irregular and reacted sluggishly, retracted abdomen, vomited while making examination. Temperature 102 2-5, respiration 49, pulse 104. A nurse was placed in charge and I told the family the child would probably not live over two weeks. I made daily visits for ten days and on the morning of the eleventh day the child died in convulsions. Hemiplegia developed on the fourth day with ptosis of left eye and pupils widely dilated.

The Relation of Food to Nervous Disturbances in Infants and Children.*

J. Clyde Moore, M. D., Omaha.

The term "nervous disturbances" in this paper is used to designate certain not well defined conditions characterized by hyperirritability of the nervous system. For convenience of discussion I have divided the cases into three main clinical types. The difference in the type is probably more a difference in degree of severity than in the essential nature of the conditions themselves.

The first class includes those of the milder type manifesting themselves by a general feeling of antagonism to everything and everybody. There is the tendency to cry at the least provocation. The child may sleep

fairly well but awakens in the morning crying or whining. It doesn't want to be dressed or washed or it wants its breakfast immediately and then refuses the food set before it. It quarrels with the other children in the family or its playmates. The appetite is capricious, usually the bowels irregular, the color somewhat pale with often dark circles under the eyes and instead of the active satisfied expression which is characteristic of the normal child, this child looks tired and peevish.

The second class includes those children who are active and show a fairly good disposition during the day, though the activity is often of a nervous type instead of the normal activity of a healthy child, but at night it becomes restless, it turns first on one side and then on the other, screams out in terror and may get out of bed. These are the so called cases of "night terrors" and to the parents such a name is appropriate in more senses than one. They represent a different phase of the same condition as the first class and sometimes we have a combination of the two types or the condition may alternate.

The third class includes the severer types of nervous manifestation. Recently the term spasmophilia has been used to designate this group. The manifestations of this group are quite varied. Some may show the clinical symptoms given above for the first two groups but in addition show the electrical reaction of Erb which places them in this group. The more severe types are well defined cases of tetany showing the Chvostek, Trousseau's and Erbs Signs. Others in this group have repeated convulsions of an epileptic type and are often diagnosed as "idiopathic epilepsy" and perhaps are early manifestations of that condition. It is possible that in some of the cases of epilepsy of later life of the "spasm or convulsion habit" as we might call it, which has been established in infancy persists until early adult life and then the convulsions are initiated by any one of a number of factors.

There are two problems before us. First why are nervous disturbances of these types so common in children and second what rela-

*Read before Omaha-Douglas County Medical Society, April 24, 1917.

tion does food bear to the production of these disturbances. In answer to the first question we say the nervous system of a child is more irritable than an adult. What do we mean by this statement? In a general way when we say that a nerve cell has hyper-irritability we mean one which responds to a stimulus weaker than normally required and the reaction to a normal stimulus is far greater than the ordinary reaction obtained with a normal cell. In other words the degree of stability of a given nervous system depends upon the ease with which the impulse is initiated, that is the threshold value, the quantitative response and the extent of the nervous system involved by a single impulse. Even this, however, is but a superficial explanation and if we would know more exactly what the actual condition is we must inquire into the nature of the nerve impulse or state of irritability itself. This takes us into an immense field and its answer would explain the fundamental physico-chemical basis of consciousness. It would explain the difference between living and inert matter.

However little we really know of the real solution of this problem, a few facts have recently been discovered which bear some light on this phase of the subject. Until the present work it was believed by most investigators that the passage of a nerve impulse was a purely physical phenomenon, perhaps analagous to the waves produced when a stone is thrown in the water. Physiologists had settled down to the view that the physical and fundamental changes concerned in irritability were either a change of colloidal state of surface tension, or in the permeability of the nerve to salt or changes in the distribution of electrically charged particles in the nerve. Within the last few days Dr. Tashiro of the Chicago University has published a work entitled "A Chemical Sign of Life." In this publication he gives the result of a large series of experiments which he has conducted in an attempt to explain the essential nature of irritability. He invented an instrument which he calls a biometer and by means of this and of a chemical reaction of the greatest delicacy he is able to demonstrate the production of so small an amount

of carbon dioxide as one-ten-millionth of a gram and measure it. He has shown by these experiments that a living nerve respire and that during the conduction of a stimulus the metabolism of the nerve fiber is augmented, as is shown by the increase in the quantity of carbon dioxide produced. He shows that the amount of carbon dioxide varies directly with the degree of irritability of the nerve. In other words he has shown that irritability or nervous reaction is at least constantly accompanied by a chemical change in the protoplasm and believes, although as yet he has not proven it, that the nervous impulse is of itself the chemical reaction. His idea is that the irritable protoplasm is in a constant state of chemical reaction and that certain things have the property of increasing this reaction with resulting increase of carbon dioxide output while other things have an opposite effect. Until we know whether the impulse itself is simply a chemical reaction or only accompanied by a chemical reaction we cannot state definitely how a stimulus acts nor how irritability is increased.

There are however certain facts that we do know and these are: First, that young growing tissue possesses a higher degree of irritability than old tissue; second, certain substances, such as urethane, ether and so on decrease the metabolic process going on in the nerve and consequently lessen its irritability; third, certain substances increase this irritability and among these substances are the sodium salts.

These facts coupled with the theory advanced above, give us a basis for a clearer conception of the action of foods and food products upon the nervous system. There has always been the hazy idea in the minds of most of us that these nervous disturbances were the result of a reflex condition, without defining to ourselves what we meant by such a statement.

In considering the manner in which the foods act it may be well to summarize briefly the classes of food and their fate in the body. Foods are divided into five classes, namely, proteid, fat, carbohydrates, salts and certain substances of probable nitrogenous nature,

including vitamins, etc. There are numerous subdivisions of each class too complicated for us to consider in this paper.

The proteids are in all probability broken down completely to the amino-acid stage. These are taken up by the intestinal mucosa cells and according to some investigators are here combined into a more complex protein molecule or according to others the amino-acid molecule is itself carried to the individual cells of the body and there synthesized into molecules peculiar to that particular cell. Some of the proteid is occasionally absorbed without being completely broken down and there is then a foreign proteid molecule in the circulation which according to its chemical composition has various effects on the organism. This represents one of the types of auto-intoxication and the nervous manifestations are a phase of this condition. The action here is probably the same as demonstrated for the various drugs in Dr. Tashiro's experiments, that is the proteid molecule has a retarding or excitatory effect upon the metabolism of the protoplasm of the nerve cell and fiber. Whether this effect is produced by a direct chemical reaction or whether the proteid acts as a catalyzing agent is a problem still unsolved.

The fats are broken up into fatty acids and glycerine, are saponified in the lumen of the intestinal canal and absorbed by the intestinal mucosa. During the passage from the lumen to the lymphatic vessels the soaps are reconverted into neutral fat and carried as such in the lymphatic circulation to the veins and thence to the body cells. Here the fat is either deposited in interstitial tissue as neutral fat or it is oxidized and utilized as a fuel. The fat itself is probably, never a direct chemical irritant or depressant of the nervous system but it may affect it in one of two ways, namely an excess of fat will sometimes cause the formation of large soap stools with a resultant loss of calcium in the body and a consequent disturbance of the salt balance in the body tissues. If the excess of fat produces a fatty diarrhoea there is an excessive loss of sodium and potassium and a consequent proportional increase of calcium and magnesium. Recent investigations point to the conclusion that tetany and

various other spasmophilic manifestations are due to the negative calcium and magnesium balance. The carbohydrates-sugars and starches, are changed into the dextro-rotary monosaccharidedextrose and absorbed in this form. Maltose is occasionally absorbed without further reduction. These products are absorbed in the small intestine and pass directly into the portal circulation. The dextrose is then either stored in the liver as glycogen or may be immediately utilized as a source of energy in the cells. An excess of carbohydrate may lead to a direct irritation of the mucosa of the intestine with resulting diarrhoea and a consequent change in the salt balance of the organism or it may change the intestinal flora from a putrefactive to a fermentative type with a resulting bowel disturbance.

The irritation of the intestinal mucosa by either fats or sugar may result in an easier absorption of foreign proteids with the results mentioned above.

The fourth element of the foods is the salts. The exact role of these in the metabolic processes is not known but it is known that a balance between the calcium and magnesium group on one hand and the sodium and potassium group on the other is essential for the maintenance of a nervous equilibrium. A relative excess of the sodium and potassium group produces a heightened excitability while a relative excess of the calcium and magnesium group produces the opposite effect. This is well illustrated in tetany and the various minor manifestations of the spasmophilic conditions.

The action of the "vitamins" of Funk, "accessory substances" of Osborne and Mendel and "fat soluble substances A" and "water soluble substances B" of McCollum, is not known. They are shown to be essential elements in nutrition and growth but whether they have a direct effect on the nervous system aside from certain nerve degenerations which their lack seems to produce, has not been decided. Another phase of this subject which we should mention before closing is the effect of food upon the bacterial flora and the result of this upon the nervous system. While a clear cut rule cannot be

given, it may be said that in general an excessive proteid diet causes a predominance of the putrefactive type of organism and this results in an excessive formation of indol and skatol and allied chemical compounds. The indol and skatol act on the nervous system in the same manner as the foreign proteid and give rise to the nervous symptoms grouped clinically under the name of "auto-intoxication."

The excess of carbohydrates especially the slowly digested starches, leads to the predominance of a fermentative type of organism. The end-products of fermentation in the intestine are lactic and butyric acid, carbon dioxide and so on. These substances, as mentioned above, often cause irritation of the intestinal mucosa and a diarrhoea or may cause lesions of the mucosa so that the nitrogenous end-products of digestive and bacterial activities are absorbed.

To summarize we can say: 1st—Nervous instability is a normal condition of infancy and childhood and is due to the fact that the protoplasm is in a state of chemical instability. 2nd—The effect of the various foods upon the nerve cells is probably a direct chemical reaction or as a catalyzer. 3rd—The proteids act directly through absorption of the end products of its digestion or indirectly by modifying of bacterial flora and the formation of toxic products. 4th—Fats act principally by causing disturbance in the salt balance within the organism or by injury to intestinal mucosa. 5th—Carbohydrates in excess, cause increased intestinal peristalsis with resulting injury to intestinal mucosa and absorption of toxic products. This effect is produced principally by increasing the fermentative type of bacteria within the intestine. 6th—The salts in the food are still under study. In the organism it is known that a nervous equilibrium as well as other metabolic processes, depends upon a balance of the various salts.

In closing I wish to give briefly three case histories which illustrate to some degree the above statements.

First, H. J. Age 3 years. Breast fed as a baby and no illness previous to present. Mother comes with complaint that child has no appetite, sleeps

very poorly, constantly tumbling about and is so peevish and irritable that she could scarcely stay in the same house with him. She thought that he had worms. Examination showed well nourished child—rather puffy and with dark circles under eyes. Throat, lungs and heart normal. Abdomen moderately extended. T. P. R. normal. Stools were light in color and frothy with small undigested particles. Showed normal amount of neutral fats, fatty acid and soaps but a marked excess of undigested starch particles. Urine was normal. The boy was put on a diet of meat broths, scraped beef, soft boiled egg with some crackers and made an immediate improvement. The condition here was directly due to excessive carbohydrate diet and increased fermentative changes in the intestine.

Case 2. D. B. Age 2 years, from Nelson, Neb. Normal labor, breast fed for 3 months. Removed from breast on account of the lack of milk. Put on Eagle Brand condensed milk and did very well except that he was always constipated. Walked and talked at normal age. Had no acute sickness until he was 16 months old. Then without warning had a convulsion. Previous to this convulsion, however, the mother said that he would occasionally hold his breath and have a queer stiffening of the arms and legs. Following this first convulsion the child had another in a few weeks and since has been having them at shortening intervals until now they come once or twice a week. The convulsion was described by mother as follows: The baby cries out once or twice, then eyes roll up and it begins to jerk and twist and then becomes rigid—sometimes seems to froth at the mouth—then relaxes and goes to sleep. It always has fever following the attack and during the last two has vomited.

Diet—General, but allowed to carry around a bottle and drink milk whenever it wanted to. It would take from 1½ pints to a quart a day in this way. Examination—Well nourished, good color, bright and active appearing boy. Throat, heart, lungs and abdomen normal. Genitals normal. Rectum normal. No fever. Trousseau's and Chvostek sign negative. Superficial reflexes active. Erb's electric sign were not tried. Bowel movement showed large, whitish, pasty stool with great excess of soap. Urine normal.

Diagnosis—Spasmophilia due to salt disturbance brought about by excessive milk diet.

Treatment—Removed all milk from diet and gave a diet with proteid and starches, especially coarser vegetables and fruits, and fats only in form of cod liver oil.

Result—No convulsions from first day of treatment. The case was seen in January and a report from the mother two weeks ago said that not the slightest sign of a convulsion had been manifest since. A later report a few days ago said that following a laxity in diet the child had had another convulsion.

Case 3. D. H. Age 20 months. Had been well until about a month before present examination. During the previous month had had two or three mild attacks of diarrhoea. During last two days had improved but child seemed very nervous. Suddenly had a convulsion. When seen, presented the ordinary signs of an acute enteritis. High fever, loose, watery bowel movement and moderate prostration. He had two convulsions at this time and then improved and seemed to progress normally for a couple of months except that he was badly constipated and was restless at night. This restlessness increased and about two months after the first convulsion he had two or three more of the same type. After these he was extremely restless during the night and peevish all day so that there was practically no rest for his parents day or night. Diet, normal for child of his age.

Physical Examination—Well nourished, color fair though dark circles under eyes, tongue moderately coated, throat normal, sixteen teeth, gums normal, heart and lungs normal. Abdomen, moderate amount of distension. Chvostek and Trousseau, negative. Other reflexes active. Bowel movement, loose, curdy, foul odor—Gram negative predominance. Urine shows marked excess of indican, otherwise normal.

Diagnosis—Hyper-irritability due to intestinal toxemia. This toxemia was probably due to an abnormal bacterial action, as change of food made very little difference in his condition.

Treatment—Nothing was of avail until he was put on high daily colonic flushings. All milk was removed from his diet and he was put on an emulsion of cod liver oil. Bromides were used occasionally at first until the nervousness was under control. The case was put on this line of treatment in February and mother reported last week that child was perfectly normal, sleeping well at night, eating normally and playing like other children during the day.

Notes.

Dr. C. C. Allison is in Ashville, South Carolina.

Dr. J. C. Moore has returned from his winter home at Miami, Florida.

Dr. Fred L. Wilson will take charge of Dr. Root's practice at Bassett for a short time.

Dr. W. C. Becker after several years absence spent in study has located at Papillion.

Dr. J. P. Lord of Omaha has returned from a six weeks' stay in southern California.

Dr. E. R. Hirsh, of Superior, was in Omaha recently visiting the various hospitals.

The building of an annex to St. Mary's Hospital at Humphrey has been postponed indefinitely.

Dr. Homer D. Lurvey of Omaha has recently been appointed physician for the Swift Packing Company.

Dr. Wm. L. Shearer, of Omaha, attended a military conference of oral surgeons held in Chicago recently.

The marriage of Miss Harriet Dixon and Dr. F. M. Conlin of Omaha took place April 10th, at North Platte.

Dr. F. A. Sedlacek, a member of the Nebraska Board of Pardons, recently made a business trip to South Dakota.

Dr. R. E. Marble has just returned to Omaha after spending several months in post graduate work in Chicago and New York.

One hundred and fifty nurses attended the closing session of the Nebraska State Nurses' Association which was held in Lincoln.

The following Columbus physicians have taken the examinations for army service: Drs. W. R. Neumarker, F. H. Morrow, A. G. Lueschen and C. A. Allenburger.

Dr. George Sullivan of St. Edwards has spent considerable time in Omaha recently where Mrs. Sullivan has been confined in a hospital following a serious surgical operation.

Dr. C. H. Newell who has been associated with Dr. A. P. Condon at the Nicholas Senn Hospital has severed his connection with the institution and has opened an office in the First National Bank Bldg., Omaha.

Dr. W. H. Crutcher, formerly assistant physician at Ingleside Hospital, has been selected by the State Board of Control as head of the new Home for Dependent Children and the Orthopedic Hospital at Lincoln.

Dr. Palmer Findley of Omaha was invited by the Council of National Defense to attend a conference of medical men for the standardization of army medical equipment. Dr. Findley attended the conference which was held in Washington, D. C.

Dr. Paul H. Ellis, lieutenant medical reserve corps, U. S. Army stationed at Fort Omaha, is kept extremely busy these days examining and looking after new recruits. There is strong possibility of the doctor being called to the front at an early date.

Andrew Sinamark and R. E. Kriz, members of the class of 1917, University of Nebraska College of Medicine, have enrolled in the Naval Reserve Medical Corps. The faculty of the College of Medicine have granted them early examinations and will recommend early graduation in view of the present national emergency.

Dr. P. R. Howard of North Bend has received from the surgeon general his medical commission in the Officers Reserve Corps of the United States

Army. Dr. Howard formerly held a commission in the Medical Reserve Corps, an organization which goes out of existence June 1, to make way for the Officers Reserve Corps, a much larger and more comprehensive organization.

Dr. E. A. Steenburg of Aurora, president of the Hamilton County Medical Association, has been requested to name a sub committee for war service should the emergency arise. The following physicians have been appointed: Drs. E. A. Steenburg, J. M. Woodard, I. W. Haughey, Donal Steenburg, all of Aurora and Dr. J. E. Gelow of Hampton. Dr. J. M. Welch of Stockham and Dr. J. S. Wainwright of Giltner have offered their services in addition to the sub committee appointed.

County Society Notes.

North Platte Valley Medical Association.

The North Platte Valley Medical Association met at Mitchell, Tuesday, April 24, 1917.

Knox County Medical Society.

The Knox County Medical Society met at Center, Wednesday, April 25, 1917. Dr. Kalar read a paper on "Cancerous Growths." Following the business meeting a banquet was given to the members and visiting physicians.

Dodge County Medical Association.

The Dodge County Medical Association met in Fremont, April 25th.

Four of the Dodge county physicians have tendered their services to the government.

The subject of medical preparedness was the principal topic of the meeting and a committee to organize the county for medical work was appointed as follows:

Dr. P. R. Howard, North Bend; Drs. S. A. Preston, George Haslam and A. E. Buchanan of Fremont.

Drs. D. T. Quigley and A. P. Overgaard of Omaha were on the program.

Webster County Medical Society.

The Webster County Medical Society gave a banquet in honor of Dr. R. Damerall, April 25, 1917, at Red Cloud.

Loup Valley Medical Society.

The Loup Valley Medical Society met in regular quarterly session at St. Paul, April 10th, 1917, with a good attendance.

J. E. Summers of Omaha gave a paper on "The Clinical Significance of the Modification of the Temperature and Pulse," giving many beneficial suggestions in surgical and general practice. The next meeting will be held in St. Paul, July 10th, 1917.

Richardson County Medical Society.

The Richardson County Medical Society held its regular meeting in Falls City, April 26, 1917.

PROGRAM.

"Nerve Block Anesthesia," Dr. Harry Everett, Lincoln.

"Ulcer of Stomach," Dr. H. R. Miner, Falls City.

"X-ray Slides, Fracture," Dr. R. L. Smith, Lincoln.

New members elected: Dr. M. L. Wilson, Falls City; Dr. Geo. W. Egermayer, Stella; Dr. A. J. Smith, Salem.

The following were present at the meeting: Dr. Harry Everett, Lincoln; Dr. R. L. Smith, Lincoln; Dr. A. J. Smith, Salem; Dr. R. W. Fouts, Dawson; Dr. W. E. Shook, Shubert; Dr. L. Cowan, Falls City; Dr. M. L. Wilson, Falls City; Dr. C. L. Hustead, Falls City; Dr. H. R. Miner, Falls City; Dr. C. T. Burchard, Falls City; Dr. H. D. Burchard, Falls City; Dr. S. D. Cowan, Falls City.

Harlan County Medical Association.

At a recent meeting of the Harlan County Medical Association held in Orleans, Nebraska, it was decided to raise the schedule of obstetric fees as follows: Normal obstetrical case in town, \$15.00; normal obstetrical case in country, \$15.00 plus 50c per mile.

The new schedule was signed by the following: Dr. Baker, Alma; Dr. Bartlett, Alma; Dr. Kerr, Alma; Dr. Campbell, Stamford; Dr. Bundle, Orleans; Dr. Gardner, Orleans; Dr. Hoffman, Orleans; Dr. Vallicott, Republican City.

Clay County Medical Society.

At the last regular meeting of the Clay County Medical Society the following minimum fee bill was adopted and went into effect April 5, 1917:

Day visits in city \$2.00; night visits (from 9 o'clock p. m. until 7 o'clock a. m.) are \$3.00; country visits, same as city calls plus 75c per mile; office prescriptions, \$1.00; office dressings, \$2.00 and up; in all cases medicine is extra. Urinalysis chemical \$1.00 to \$2.00; normal labor \$20.00 and \$1.00 per hour after six hours detention. Normal labor in the country, same as in city plus mileage. Instrumental labor, not less than \$25.00 and mileage. All extra visits at the regular fee. Consultation \$10.00 and mileage. General anesthetic \$10.00 and mileage. Life insurance examinations, \$5.00. Surgery according to the degree of injury.

All bills are due when patient is discharged.

Drs. J. O. Latta, F. A. Butler, G. H. Bentz, L. K. Strate, R. T. Jones, W. M. Thomas, R. D. Martin, J. E. Spatz, J. R. Bell, W. A. Clate, V. A. Lanphier, H. H. Schultz, J. W. Thompson, J. B. Bixby, I. D. Howard, F. L. Beck, C. G. Delfs, C. R. Spicer, J. W. Archerd, H. W. Adams, I. E. Ingram, D. F. Anderson, W. A. Winston, O. C. Asa, C. C. Snowden, W. H. Nelson, A. M. Lemone, L. Fox, B. E. Melborn, J. R. Venning, J. C. Bierne, H. H. Seely.

A good opening for a doctor to practice medicine and carry small stock of drugs. Nothing to buy. For particulars address,

Blue Valley State Bank,
Spring Ranch, Neb.

THE NEBRASKA STATE MEDICAL JOURNAL



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Cardiac Arrhythmia.*

A. K. Detwiler, M. D., Omaha.

During recent years much attention has been given to the study of cardiac irregularities, in consequence of the introduction of the Mackenzie polygraph, and that eighth wonder of the world, the string galvanometer of Einthoven, both of which have rendered possible the recognition of the various types.

The excessive interest taken in cardiac murmurs had distracted attention from the cardiac rhythm, and more attention was paid to the condition of the cardiac valves and their sounds and not enough to the condition of the myocardium.

The principal types of cardiac arrhythmia or irregularity may be classified in terms of disturbed function of the primitive cardiac tube. When the rhythm is started irregularly at the sinus venosus, we have the type known as **sinus irregularity**. If the contraction of the auricle between the sino-auricular node and the A. V. bundle is disorderly there is auricular fibrillation. Any abnormal stimulation of the tube at some point below the

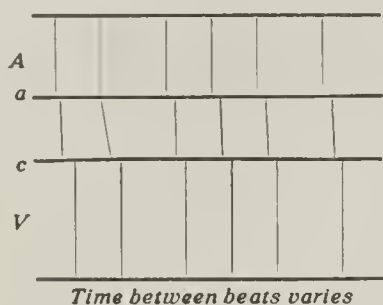
sinus, results in a small premature contraction or extra systole. A diminution in the conduction power of the bundle prevents each contraction of the auricles from being followed by one of the ventricles—heart block; and lastly, when the contractility is exhausted the beats may vary in strength, and we have pulsus alternans. Practically all forms of irregularity may be explained as due to one or more of these conditions.

Sinus Irregularity.

At the entrance of the great veins to the heart, is the remains of the sinus venosus the normal pace maker of the heart which sets the rhythm. In cases of sinus irregularity, the rhythm is started at the normal place but not at the normal time, yet when once started it is transmitted quite normally. The duration of systole is constant but the diastolic intervals vary. When the pulse quickens the diastolic intervals are encroached upon, so that this type of irregularity disappears in fever. On the other hand it is apt to appear for the first time or to reappear and be noticed as the heart slows down after a febrile attack. It is common in children under such circumstances. It is common in

*Read before Nebraska State Medical Association, Lincoln, May, 1917.

dogs and disappears after section of the vagus. When the vagus is unduly irritable, sinus irregularity can be induced by swallowing, or rapid respiration—two acts which stimulate the sensory branches of the vagus.



A. Auricle beat—jugular.

V. Ventricle beat—carotid.

a-c Interval of passage along A. V. bundle from auricle to ventricle.

Sinus irregularity may be recognized by the fact that though the pulse rate varies, the beats are equal in strength, and on auscultation the intervals between first and second sounds are constant. It occurs in healthy people and in neurasthenics—it does not cause any real inconvenience and is generally first detected by examination. It is important to recognize it so that undue significance may not be attached to it. In short an irregularity that disappears with fever need not trouble us.

It may occur in cerebral conditions also, but that does not affect their severity in any way.

Auricular Fibrillation.

Interference with the passage of the wave from sinus to ventricle owing to irregular and inadequate contractions of the auricle. This is the irregularity seen in the late stages of mitral disease especially mitral stenosis. Attention should be called to the way in which the typical crescendo pre-systolic murmur may suddenly vanish. A diastolic diminishing murmur may be present, but its method of production is different. The crescendo murmur is due to auricular contraction, while the diastolic murmur is due to the blood which has been stored up in the auricle during ventricular systole flowing through a constricted orifice, as soon as the ventricle passes into diastole. The former is an active sound, the latter passive. At the same time the jugular pulse changes in character, presenting no evidence of an auricular contraction in the normal period. Lewis found by the string galvanometer that the ordinary wave of auricular systole is replaced by a

number of fine waves with a frequency of 200-300 oscillations per minute. This is due to the overstretched muscle of the auricle, with its obstructed outflow, becoming incapable of orderly contraction. Lewis has also observed that a rise of venous pressure produced by squeezing the abdomen may balloon the right auricle, and so produce in the dog a paroxysm of auricular fibrillation. In arteriosclerotic cases there is degeneration of the arteries. In either case the auricular muscle is more irritable, but less effective, and the auricular stimulus reaches the bundle too rapidly and irregularly for the ventricles to respond.

Auricular fibrillation can generally be recognized even without special apparatus by the following points:

1. The pulse is completely irregular, there is no relation between the size and strength of the beats and the preceding diastolic pauses, such as is found with extra systoles.

2. The veins in the neck are distended causing a feeling of fullness, and the only large wave seen in them is synchronous with the ventricular systole.

3. The sudden disappearance of the typical crescendo presystolic murmur of the mitral stenosis, and the increase of subjective symptoms such as dyspnoea, pallor, orthopnoea; if these occur suddenly with an irregular pulse they are almost always due to fibrillation.

Because of this disorderly rhythm imposed on them, the ventricles are placed at a great mechanical disadvantage, and it is to this that the serious symptoms are due. If we can make the ventricular rhythm slower and more regular, enough blood can be aspirated from the auricles into the ventricles to maintain the circulation, even though the auricles are in a state of paralytic distention, i. e. ballooned out. The action of digitalis is more successful in the auricular fibrillation of mitral stenosis than in any other class of cases, and a few doses may change the condition from one of acute distress to one of comparative comfort. This is due to the depressing effect of digitalis on conductivity, producing a mild degree of heart block, so that the ventricle ignores most of the irregular stimuli it receives from the fibrillating auricle.

It is necessary to give full doses to produce this effect, and there can be no danger in so doing, as the first toxic action of the drug is headache or nausea, and vomiting,

which lead to its discontinuance. The appearance of coupled beats is a sign to stop digitalis for the time. The influence of the drug is much less if there is fever especially if the heart muscle is involved; in cardio-sclerotic cases there is much less effect, because there is more degeneration of the myocardium.

It has often been said that once auricular fibrillation is established it is permanent even though digitalis may restore normal rhythm to the ventricles, and it certainly plays an important part in the ultimate break down of the heart.

Extra Systoles

Premature contractions of the ventricle in response to a stimulus from some other portion of the heart than the sino - auricular node, but where otherwise the fundamental rhythm is maintained, is very common.

If a stimulus originates at some other part of the heart than the sino - auricular node, a premature contraction will occur, and as the heart has not had time to accumulate sufficient contractile material this beat will be smaller than normal, and for a similar reason will be followed by a longer pause. This disturbance of rhythm constitutes the extra systole, and usually involves the ventricle alone.

It had been produced experimentally long before its clinical counterpart was known. It can be detected by the premature pulse in

the radial artery followed by an abnormally long pause. The regular sequence of the heart sounds is occasionally interrupted by two sharp sounds, or one may be followed by a long pause. On examining the venous pulse in the neck while ausculting, the large auricular wave in the neck is seen to come just after the premature beat, because the auricle, in trying to drive the blood into a

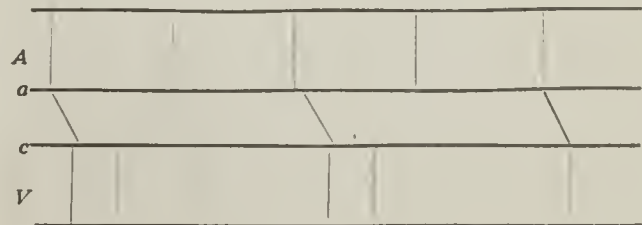
ventricle already in systole, fails, and a larger volume is driven into the great veins of the neck. The patient complains of the heart stopping or turning over.

In the young it is not uncommon and too much importance must not be attached to it. We have followed cases for many years through all sorts of sickness and stress and have seen no reason to attach serious import to it.

But in the syphilitic or later in life with high blood pressure we find it to be suggestive of impending heart block.

Extra systole is diametrically opposed to heart block, being due to in-

creased irritability of the A. V. bundle, and not to diminished conductivity.



C. L. MULLINS, M. D., Broken Bow.
President Nebraska State Medical Association, 1918.

But, slight lesions of the bundle stimulate it, while severe lesions obstruct the conduction of a wave through it. Mackenzie found that the long pause after the extra systole is due to difficulty in the passage of the wave through the bundle, because in its diseased condition a premature beat uses up so much of its energy that it is incapable of responding for some time.

Paroxysmal Tachycardia.

Paroxysmal tachycardia is due to the less common condition of extra systoles starting in the auricles. This does not constitute irregularity except when the paroxysms last but a few seconds. It is conveniently considered here with the conditions to which it is closely allied. Lewis describes the simple tachycardia, such as occurs in exophthalmic goiter, pulmonary tuberculosis, infective conditions and alcoholism, as follows: "The pulse rate falls during rest or recumbency rising to the original rate on standing; it is raised by exercise and emotion; the tracings and electrocardiogram are normal and the rapidity is gradual in onset and termination." Simple tachycardia should never in the absence of other signs suggest a cardiac lesion.

There are, however, pathological tachycardias which appear and disappear abruptly and are uninfluenced by posture and exercise. In these there is an irritable focus in the auricle and the auricular extra systoles are originated there, passing onwards to the ventricle as usual, but backwards as well to the great veins, thus inverting the auricular wave. Such tachycardia rarely produces contractions of more than 200 per minute. Lewis describes a condition of "auricular flutter" in which the auricular beat may rise as high as 330 per minute, but as may be imagined, the ventricle can not keep up such a pace, and may respond only to every fourth or second beat, or it may respond unevenly causing obvious irregularity. The reason for distinguishing "flutter" from paroxysmal tachycardia is that the former may pass on the administration of digitalis, into fibrillation.

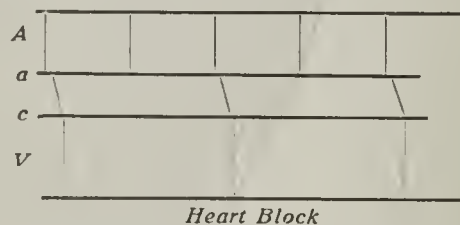
When tachycardia lasts for weeks or months it is probably due to flutter, and is more responsive to digitalis than paroxysmal tachycardia where all remedies are uncertain, though the spontaneous ending of some cases has led to various remedies being cred-

ited, without justification, with producing the desired effect.

Heart Block.

Every auricular contraction is not followed by a ventricular contraction.

This condition has been known since the middle of the last century as Stokes-Adams disease, but its significance and its method of production have been appreciated only within the last decade. It is featured by (1) slow pulse at first paroxysmal, but tending to become permanent. The commonest rate is 30 per minute, but 20 or even as low as 6 have been observed. (2) The auricular contractions as shown by the jugular wave remain approximately normal and even by inspection it may be possible to make out that only one out of every 2 or 3 or 4 contractions of the auricle are followed by a ventricular contraction. (3) There are frequent attacks of vertigo, syncope or epileptiform convulsions. The condition was originally thought to be due to atheroma of the bulbar arteries leading to inhibition of the heart through vagal stimulation. A heart in which conductivity is impaired would be unduly sensitive to ordinary vagal inhibition. But the anatomical changes found in Stokes-Adams disease point strongly to the conclusion that the cause is a lesion of the A. V. bundle; the cerebral symptoms being due to anaemia of the brain resulting from defective circulation.



The following are some of the conditions that have been found: Gummata, anaemic necrosis consequent upon disease of the nutrient arteries; fibrosis; new growth; fatty infiltration. That similar symptom can be produced by pathological conditions so diverse, supports the idea that one feature is common to all—interference with the conducting bundle.

Temporary heart block has been described in rheumatism and influenza due to the bundle becoming involved in the inflammation of the myocardium.

(When drugs like digitalis, aconitine physostigmine, adrenalin, squills and strophanthus cause block, there is probably some impaired conductivity already existing).

As a large proportion of cases of heart block are due to lues, Wasserman's reaction should be tried in every case, and if it is positive, vigorous antisiphilitic treatment should be carried out, for, though often disappointing it affords the best chance of relief.

In young people with a history rheumatism, effective doses of sodium salicylate should be given for there is no commoner cause of heart failure in the young than rheumatic carditis.

Atropin is indicated on theoretical grounds as it paralyzes the inhibitory action of the vagus, but it does not give good results when the block is complete.

Caffeine and strychnine should be given during the paroxysm. They both appear to improve conductivity, and the caffeine diminishes the action of the vagus on the heart as well.

Digitalis is contra-indicated as long as the block is incomplete, as it depresses the conductivity of the bundle. But when the block has become complete, digitalis can no longer depress the contractions of the independently acting ventricle, by increasing its tonicity.

Pulsus Alternans.

A regular succession of small and large beats. This is explained by Wenkebach as follows: "When contractility is depressed, a strong and full contraction will encroach upon the period of rest so that, when the next stimulus arrives contractility has not sufficiently recovered and a shorter and smaller contraction results." As this contraction is shorter the period of rest is lengthened, before the next stimulus arrives and the next contraction will be longer and stronger and so on.

Now one of the chief causes of a full and strong contraction is increased resistance to the flow through the peripheral vessels such as occurs in arteriosclerosis. Mackenzie has shown that high blood pressure has an important influence in producing pulsus alternans. In healthy hearts the period of rest is so long that a little increase or shortening has no perceptible effect upon the size of the beat—but this is not true of damaged hearts, where a little variation in the period of rest will have a manifest influence on the subsequent contraction.

Deficient conductivity thus leads to heart

block and impaired contractility to pulsus alternans. Sooner or later both functions are apt to become depressed when extra systoles will appear with the alternating pulse, producing a very confusing irregularity. It may be brought out only on exertion and it is difficult to recognize by the finger, even when the tracing shows obvious alterations. The difference in the force of the beats is more readily detected if the vessel is firmly compressed. It implies a grave condition with exhausted heart and great impairment of reserve force.

In any patient with arterial disease and alternating pulse the occurrence of angina may be predicted, unless dropsy sets in, when an angina, if present, usually ceases. Apart from angina the dominant symptom is breathlessness without apparent cause. If this occurs in an elderly patient with high pressure, but in whom the heart is only a little enlarged and free from valvular defects, the lungs clear and the kidneys not diseased, the presence of alternating pulse is likely. The dyspnoea is paroxysmal, or it may be Cheyne Stokes in type. The gravity of this condition is shown by Windle's series of seventeen cases in which none lived longer than seventeen months after the discovery of the pulsus alternans. It must be distinguished from the bigeminal pulse of extra systoles, which means only increased excitability of the heart, and is in no sense an index of the condition of the myocardium, or any indication of the expectation of life. In extra systoles the long pause follows the small beat, while with the alternating pulse the intervals may be equal or if unequal the short pause follows the small beat.

Conclusion.

Sinus irregularity has no real significance. Extra systoles either from the auricle or ventricle mean increased irritability of the heart, but not necessary organic muscle defect and are compatible with many years of active life. Auricular fibrillation, means serious mechanical defects, which will be important in inducing heart failure. Heart block, except when toxic, is grave in its prognosis. Alternating pulse, means death within two years. The recognition of these types should prevent us in the future from alarming a patient already nervous, by the vague and terrifying diagnosis of weak heart.

Treatment.

In the light of the new evidence as to cardiac rythm, the action of drugs used for diseases of the heart has had to be reinvestigated. The following conclusions have been arrived at, though much remains to be studied.

By far the most potent of these drugs is digitalis, but it is a two edged sword and serious results may follow its use in unsuitable cases. In addition to acting upon the heart it has a pronounced action on the blood vessels causing vaso-constriction and therefore a rise of blood pressure. Some recent investigators have not found this vaso-constrictor action in human beings. Still it does not give very satisfactory results, when the pressure is high. The blood pressure should be determined in every case, and if high digitalis should be combined with sodium nitrite gr. i., or Erythrol-tetra-nitrate gr. ss every six hours.

Passing from the vessels to the heart, we must consider its action on the conductivity, tonicity and contractility.

On conductivity digitalis has a depressing effect. It has been shown by Mackenzie, that it causes a delay and sometimes a stoppage in the transmission of the impulse from auricle to ventricle. Conduction is such an important function of the A. V. bundle, that when this structure is involved as in partial heart block, digitalis is contra-indicated. In many cases of heart block the blood pressure may be quite high though the arterial pulse may be slow. We know of three cases with blood pressure from 210-270. In one case the radial pulse was 32, the venous pulse 64, and the blood pressure more than 300.

On the contrary when there is auricular fibrillation in mitral stenosis, digitalis is most useful. Here the stretching and thinning of the auricular muscle interferes with the passage of the wave and the bundle itself is not at fault. We remedy this by increasing the tonicity of the auricles, and it is here that digitalis has its most remarkable effect. This is because one of the greatest effects of digitalis is on tonicity. In the acute dilatations of febrile affections it has no effect, and not much on the dilatation secondary to cardio sclerosis. In cases of dilatation with weak and insufficient systole, its action is almost specific. This is true whether one or both ventricles are affected, so long as the cardiac muscle has not undergone degeneration.

The reaction of the different types of irregularity to digitalis may be tabulated as follows:

Digitalis Indicated	Digitalis of no Value	Digitalis Contra-Indicated
Auricular fibrillation	Sinus irregularity	{ Incomplete Heart Block
Auricular flutter	Ventricular extra systole	
May Be Indicated in	Paroxysmal } Tachycardia }	Pulsus Alternans
Complete heart block	Toxic Myocarditis	

Strophanthus is not so readily absorbed as digitalis, but intravenous injections of crystalline strophanthin (ouabain) have a very powerful and immediate effect. A dose of 1/250 gr. may be given in a little saline, and repeated in two and then in four hours if necessary. It is not free from risk and if digitalis has been given it is very dangerous.

The action of the caffeine group and strychnine have already been considered under heart block.

We will not go into hygiene and exercise, or the treatment of arrhythmia in general, but simply call attention to modifications in our ideas, which result from recent investigations into the functions of the heart muscle.

Discussion.

W. N. Anderson, Omaha.—I have a few case histories to present. In seeing these cases and studying them clinically we can make the diagnosis of the various types almost as easily as though we had an electrocardiograph record. I have here the record of a case 25 years old, of a sinus irregularity. When I put the instrument on the boy's wrist he fainted and during the faint he had a perfectly regular pulse. Knowing that the condition must have been of nervous origin, I administered 1/60th of a grain of atropin. The boy on general principles was put on belladonna and necessary hygienic measures and had no more trouble with his irregularity until he had an overloading of the bowels.

Then this one of auricular fibrillation. I will pass this chart around because it is an example of pulse deficit. The top shows the pulse as read at the apex; the bottom that taken at the radial, showing that there is a pulse deficit. This condition is almost diagnostic of auricular fibrillation. By noticing how the two lines converge, one sees the effect of digitalis upon auricular fibrillation. Lewis, in his book, tells us that 41% of irregularities are due to auricular fibrillation. If this is so, you and I and all of us are going to see this condition just described.

This is a case history of a man forty-five years old and who had had heart attacks for five years. The only way to diagnose a paroxysmal tachycardia is by the history—you do not get there in time ordinarily. This man had for seventy-two hours a pulse of 200.

Here is another case of an auricular flutter in

which there is a two-one heart block. She had a mitral stenosis and you could pick out a pre-systolic murmur alone then followed by the mitral murmur the next time, so that she had two auricular contractions and then the ventricular contraction.

Stokes-Adams syndrome is another that you have to diagnose practically on the history, so instruct these people to keep a diary of the attacks and if they are unconscious have some of their friends keep a record of the pulse. If they have a very slow pulse you can put it down it is probably some form of heart block.

It is a pretty safe rule that any irregularity you come in contact with that has not previously had digitalis it is safe for you to administer it. On the other hand, given a case which has been given digitalis, and there is any sort of irregularity, it is absolutely a contraindication for digitalis because we know that digitalis will give even an auricular fibrillation. Some authors give digitalis up to the stage of establishing auricular fibrillation and then let them come back, hoping thereby to establish compensation.

The Theory of Psychic Causation In Insanity*

L. B. Pilsbury, M. D., Lincoln.

Perhaps nothing in medicine is harder to evaluate than the various factors which enter, actually or potentially, into the production of insanity. This difficulty is partly inherent in the nature of the disturbance and partly in the nature of the cause or causes. We are dealing here not merely with a number of possible organic disturbances or alterations, but also with a "geist" or spirit which, whatever else may be said about it, at least shows great originality in its alterations and in its ways of manifesting them. So great is this variety, in fact, that systems of classification are notoriously hard to build and equally hard to maintain. Keeping a classification intact is like holding water in a vessel full of openings, no one of which is sooner stopped than others begin to leak. This is not confined to the domain of mental diseases, by any means, but in general it may be said that the difficulty in retaining the water increases with the number of openings or in other words with the degree of refinement in the classification. The writer remembers seeing a table about a column and a half long which assumed to cover and doubtless did cover the various possible kinds of epilepsy. There is absolutely no fault to be found with this form of endeavor so long as it rests on a real clinical basis and throws even a few additional rays of light on the subject. As a matter of fact the interests of

science can be advanced only by means of the sort of patient and painstaking observation that leads one to become dissatisfied with old or inadequate classifications. When no longer useful as working formulas they may be discarded like any other worn out tools.

Where there exists such a wealth of speculative material as we have in insanity there is naturally much crossing and not a little confusion of lines of theoretical consideration. It would be simple indeed if we could say that a certain type of physical derangement or mental shock caused a certain type of insanity, but in point of fact what certain knowledge have we concerning the causation of any cases of so-called functional insanity? Fashions change in medicine just as in everything else and at present it seems to be the fashion to lay a good deal of stress on psychogenic factors, not simply on their superficial manifestations but rather upon their genesis through the operation, largely unconscious, of factors of childhood experience. These are assumed to be of greater significance in the production of the psychonuroses than in the grave insanities, but enough stress is being laid upon them to warrant their serious consideration.

The human mind, an uncertain instrument under the best of conditions, is perhaps peculiar in the fact that it so often seems to furnish the material or the reason for its own undoing. I use the word "seems" advisedly because I think we are prone to fall into the error of taking the appearance for the reality, the symptom or the symbol for the thing itself. (Symbol is used here in the sense of a representative of something else, that is an out-growth or evolution of something else.) This is proper enough in metaphysical and to a limited extent in psychological discussion, but it does not furnish an instrument wherewith to unravel the Chinese puzzle of abnormal psychology.

Obviously we cannot tell why we have insanity until we can determine, by observation or experiment, the efficient causes of disturbed mental function in general. Since experimentation on the human subject in this direction is clearly out of the question we must fall back upon observation. To this end the study of neurasthenia, psychasthenia, hysteria, anxiety neuroses, etc., ought theoretically to be fruitful for the explanation of insanity. To a certain extent this is true and yet the gap between the above mentioned dis-

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orders and dementia praecox, for example, has not been found easy to bridge. It is a trite saying that no two insane persons are quite alike, just as no two normal persons are quite alike. It is also true that we meet with all possible degrees of mental impairment or incompetence between the almost supernormal mentality of one extreme and the profound dementia of the other. Other things to be noted are the peculiar manifestations of genius, of paranoia and of exuberant but fruitless intellectual activity.

One need not be a determinist in order to believe that mental symptoms have definite antecedent states of mind just as normal mental states have and to go a step farther one may also safely assume that mind and body sometimes do react upon each other. However, it is often very difficult to say in states of depression, for example, whether the impaired bodily functions are chiefly responsible for the state of mind or the state of mind for the impaired bodily functions. Depressed patients in maniac-depressive insanity are undoubtedly helped to recover by drugs, hydrotherapy, hopeful suggestion and general measures, but they just as certainly tend to recover from the individual attack even without these valuable aids.

If we trace back the antecedent states of mind or of body far enough we come, of course, to the germ plasm and here may be assumed to reside very numerous and very strong determiners of mental and physical evolution, but this does not tell us why or in what way a tendency to nervous and mental aberration passes from generation to generation. Did some remote ancestor become just a little bit insane and so impress one of his children through daily association that the child became more insane than the father or did the father's insanity so alter the germ plasm that his unborn child later became insane? These are fundamental questions. In the first instance we have the influence of environment and in the second the influence of heredity, but the second comes into conflict with the doctrine of non-inheritance of acquired characteristics. Very likely the vessel containing the distillate of the above doctrine has a few holes in it, just as the container of the theory of absolute determinism in psychology has. It seems reasonable to say that we think or feel as we do at any given time because of the way we thought or felt previously, but the writer feels disposed to follow the lead of his former university

teacher in psychology in flying the track of determinism and giving free-will at least a little chance.

If we acknowledge the existence of matter we reject idealism, if we grant the existence of a spirit we reject materialism and pure dualism does not seem to meet the practical requirements of the case. Probably a certain amount, at least, of psychophysical interdependence may be assumed and that simply means that mind influences body and body influences mind. Is it possible, then, for insanity to exist as a purely psychogenic disorder? Apparently it is, at least in many cases there do not seem to be such evidences of organic change in the central nervous system or elsewhere as to suggest an underlying physical cause. However, to explain insanity without physical cause we must grant the mind a large amount of potential freedom and this leads, if not to dualism, at least to psychophysical parallelism. It is quite true that many, if not most, writers nowadays discuss mind as a mere manifestation of physical energy or cellular activity, but this is hard to reconcile with the current tendency towards purely psychologic explanations of most forms of insanity. The most prominent of the neo-Freudians in Europe told the writer some eight or nine years ago that for about that many years previous he had not made anatomic studies. This simply indicates that he had ceased to consider them of practical value.

If we rest the case of the causation of functional nervous and mental disorders on psychic trauma, largely sexual, in childhood we meet with another theoretical difficulty. Under this assumption such trauma must be so exceedingly common that scarcely any one escapes, though the great majority of people fail to suffer ill effects in later life, or else certain persons of exceptionally good environment escape the experience and develop a neurosis or insanity without it. Even ideal environment unfortunately affords no sure protection against insanity and this leads us back to the germ plasm. If toxins produce insanity must they first poison the germ plasm; and if psychic trauma produces insanity does it poison the germ cells or does it lead to the production of toxins which poison the germ cells; and if the germ cells are not injured how can there be any heredity in insanity; and if such factors do injure the germ plasm what becomes of Weismann's law? These are questions for the future to answer.

Nervous States.*

G. W. Dishong, M. D., Omaha.

It is not the purpose of this paper to attempt a technical review of the neuroses, but rather a practical effort to simplify the modern conception of the origin and operation of nervous symptoms in general. Unfortunately, a diagnosis of nervousness has always carried with it a degree of unworthiness, as if the discomfort were imaginary or feigned or might be controlled at will by the individual. The terms hysteria and neurasthenia are too often carelessly used as a dumping ground for what is considered clinical rubbish and the mass of premature and unscientific criticism appearing in current literature pertaining to the neuroses, has added to the confusion of the problem.

Now, as a matter of fact, the suffering in neurosis is real, whether physical or mental. Pain as a physical manifestation of hysteria can cause intense suffering and the body is racked and exhausted in consequence in the same manner as if the suffering were determined by disease or injury, and the patient whose mind is obsessed with fear and compulsive tendencies, though realizing their absurdity, can no more control the feeling of anxiety than the individual confronted with actual danger.

There are different degrees of nervousness and the phases are practically innumerable, but it simplifies the conception very much when we realize that all functional nervous disorders are similar in origin and development and that the basic factor common to them all is an inherent mental conflict. (1) And in neurosis, we are not dealing with a disease entity, not a definite clinical picture. Each case presents its individual symptom complex and treatment is successful only when we treat the individual patient and not the disease.

The physician whose work brings him in intimate contact with the various forms of nervousness, is struck with the enormous amount of suffering it entails and the fact that so few people are really free from it. We find it in all walks of life, in all ages, and in both sexes, and neurosis does not imply an interior type of individual. Certain severe forms of neurosis are not incompatible with the highest achievement, and there is some truth in the trite saying that the

big things in life are done by neurotics. However, in these cases, there is probably a constitutional predisposition—a suitable soil or organ-inferiority” (in the sense of Adler) that comes to the neuropath as a heritage which renders him vulnerable to causes which are operating on us all. In reality the neurosis is a defense formation standing between a feeling of inferiority and the demands of daily living. Conflict is the essential thing in neurosis and the conflict differs with the individual and the individual environment.

In the development of a nervous state, the patient is conscious only of an increasing sense of discomfort in attempting to face the demands of life. There is a feeling that the cause is in the form of obstacles without, while in reality the cause of the disharmony is within the subconscious of the individual. The peculiar thoughts, fears and obsessions of these patients invariably lead to feeling of self depreciation—a feeling of inferiority—and the peculiar fears and thoughts to them are explained as evidence of mental infirmity. The conflict in the subconscious leads to feelings of doubt and vacillation, which spread out over every thought and act. A false perspective is supplied by this unconscious emotional conflict and the ordinary incidents of life are not appreciated at their proper value. Because of the turmoil in the subconscious minds of these patients, their psychological tension is always near the bursting point and when stress comes in any form—even the most trifling incidents—they react in an exaggerated manner. The conflict leads to mental dissociation. As Janet puts it “a defect in the actual synthesis of the psychological elements” (2). So that all neurotic patients sooner or later, complain of a sense of unreality. Back of all these states is a feeling of inadequacy and an instinctive tendency to shirk certain necessary demands of the environment. This regressive tendency is conditioned by an infantile attitude of mind. Early emotional experiences have left faulty impressions, so that the emotional development lagged. The intellect continued to develop, but the emotions become fixed, so to speak, to a certain period of childhood. “There is the intelligence of an adult with the emotions and feelings of a child.”

Only a small portion of our mental life is conscious and our conscious processes must all come from the great subconscious—a composite personality receiving impressions from

*Read before Nebraska State Medical Association, Lincoln, May, 1917.

every thought and incident of our lives. Here are the brain patterns which determine conduct as well as the emotional strivings and tendencies which may remain repressed in the unconscious or break through and become conscious motives for action. It is in the unconscious selection of motives that the intrapsychical conflict is introduced. Civilization consists not only in repressing our primitive tendencies, but in refining them to a certain extent. In normal mental life, there is unconscious repression of primitive tendencies which enables the individual to adjust himself in harmony with conventional demands. The primitive tendencies, however, are present in every human soul. It is only when the repression gives way and the strivings which are incompatible with the ego are about to break through into consciousness that nervousness results. The resulting emotional conflict represents energy which is repressed and under tension. In this form the energy is not available for useful work and finally escapes as symptoms of neurosis.

Nervousness then, is the expression of energy going astray (3). The energy demanded for adaptation is here converted into symptoms. Text books contain various attempts at classifying the symptoms and schools differ widely as to the theory of neurosis. The modern or dynamic theory developed by Freud and Jung is intelligible and comprehensive and furnishes a technique which makes it possible for patient and physician alike to understand the cause of the discomfort and raises the concept neurosis to a higher plane in its relative importance to other forms of affliction. Freud classifies the neuroses into: 1, Hysterical manifestations; 2, compulsion neurosis; 3, anxiety neurosis; 4, neurasthenia. In hysteria, the emotional energy finds its way into bodily innervation producing somatic symptoms. In compulsion neurosis, the emotional conflict becomes displaced from the original repressed idea and is attached to some other indifferent idea. In anxiety neurosis, the energy is projected as free or floating anxiety resulting in irritability, anxious expectation, phobias, and the usual bodily manifestations accompanying fear and anxiety. Neurasthenia, gives us easy fatigueability, spinal irritation, emotional irritability, chronic nervous exhaustion, headache, pain in the back, etc.

The different forms of neurosis are all the result of intrapsychical conflict and the forms

will differ with the individual and the type of his brain patterns. The basic factors in all nervous states being similar, we would expect the neuroses to be mixed and hence we find in hysteria, features of compulsion neurosis and in anxiety neurosis, features of hysterical conversion. Likewise, neurasthenia and compulsion neurosis may have many symptoms in common.

In a frank hysterical convulsion, we can readily believe that the symptoms are the result of conflict or disharmony. When stress becomes too great, the patient is thrown into a convulsion. In reality the fit is a substitute for more adequate reaction—a compromise between the emotional strivings and the demands of the environment. This is the mechanism back of all hysterical manifestations and the same principle underlies all nervous states.

Hysterical manifestations are common. In fact hysteria is characterized by the ability to transform psychic into physical manifestation. The energy stirred up by the emotional conflict breaks through the physiological coordination and produces the symptoms. The common phases are hysterical excitement and convulsion, disturbances in sensibility, altered heart action, respiratory discomfort—feeling of suffocation—aphasia, dysphagia, paralysis and various pain pathways. Pain in the abdomen of the female is too frequently interpreted as an indication for surgical treatment. It is probable that some deviation from the normal has preceded the pain and determined that certain tissues or organ should be a pain pathway for the neurosis, but it does not follow that removal of the organ will relieve the pain—the injury inflicted can only determine more fully the pathway for the pain.

Compulsion neurosis includes the symptoms commonly termed psychasthenia. In the minds of these patients, there are compulsive tendencies to act or think in various ways, and the patient is forced against his will and without apparent reason to think certain ideas or certain thoughts or to do certain things. The mind is obsessed with phobias, indecisions and irritable impulses. There are all sorts of doubts and absurd ceremonials which lead to mental unrest and nervous instability. Often the compulsive thoughts are audible and in the form of vulgar or obscene words and phrases, profanity or sacreligious utterances, all of which are shock-

ing to the individual who is fighting consciously to repress them. These patients are intelligent and sane, but occupied so completely with their mental conflicts there is little energy or attention remaining for useful activity. These cases are common and found in all walks of life. The writer recently treated a young woman of intelligence and refinement who was troubled at night just as she was falling asleep with the thought of accidentally running her crochet hook into her hand. It was impossible to rid her mind of this thought unless she went through in her imagination, step by step, the entire process of removing the hook from her flesh and then putting the hook with the thread in its proper receptacle and placing it on the end of the dresser. There were other phases of her neurosis, but this was the outstanding symptom.

The symptomatology of anxiety neurosis is difficult to describe in brief and at points it appears to merge into neurasthenia. The anxiety here is not associated with any definite thought or act, but is projected from the subconscious conflict as "floating anxiety" and may become attached to any idea. These patients worry over trifles and continually expect calamity. This mental unrest naturally leads to irritability, insomnia, disturbances of heart action, perspiration, trembling, nausea, anorexia, etc.

The term neurasthenia is applied to almost any condition and while its symptom complex is probably the most clean cut of the neurosis, it is commonly misused and hence does not carry the picture intended. "This condition is known as a primary fatigue neurosis and has certain quite characteristic and constant symptoms which are in the main a feeling of pressure on the top of the head, more or less insomnia, spinal irritation, with perhaps pain in the back, certain parasthesias, easy fatigability, emotional irritability and some depression" (4).

Classifying the neuroses may seem desirable as a matter of convenience, but we can readily see that a sharp line cannot be drawn between the different forms. The underlying intrapsychical conflict is the basic factor in all forms of neurosis, but the individual equation must be considered—the individual as a composite of psychic and organic heredity plus mental impressions in the formative period of life. It is not implied that there is an organic defect or that the early exper-

iences of these individuals are necessarily unusual or peculiar, but rather a constitutional taint or hypersensitiveness, which favors the development of faulty brain patterns from the experiences common to childhood. It follows then that neurosis, in a large measure is preventable, if the child's training is directed to the end that proper impressions are left for future guidance. The impressions, forgotten and repressed, furnish an emotional setting for the incidents in later life and determine the type of reaction. In neurosis, the reaction is inadequate and infantile and the symptoms represent the energy which should be utilized in meeting the demands of life. It is the aim of treatment to bring about a more harmonious adaptation so that the patient's energy is available for useful effort.

In the treatment of neurosis, we are dealing with a force-repression. We are all repressing in the subconscious mind, certain instinctive tendencies which ever strive for conscious recognition and it is the breaking through of this incompatible emotional urge that precipitates neurosis. The nature of the conflict is a "battle of motives" and here again we must keep in mind that no new factor is introduced. This is a phase of normal mental life and the conflict varies with the individual. It differs in degree depending on the brain patterns in the subconscious of the individual. The type of brain patterns is determined by impressions in the formative period of life and condition in a large measure the refinement of the instinctive and fundamental tendencies underlying conduct or character. There are individuals whose early experiences have left impressions which prevented the proper refinement of the fundamental instincts. Here the subconscious motives and tendencies will be infantile and incompatible with conscious personality. These motives strive for conscious recognition, but being incompatible with the ego, they are repressed. The repression finally gives way and nervous symptoms result. The resulting conduct is unusual and apparently without reason, but in reality, it has the value of a compromise between the repression and the subconscious strivings.

Many of these cases are curable and all can be helped. Treatment may consist in simply reestablishing the repression. This is done by assurance and the so-called rest cure. But a more rational procedure is a form of re-

education that enables the patient to see the situation in its proper light. This is mental analysis and eliminates the conflict by directing the energy into useful activity. The activities of an individual are in response to his "self will" or aggressiveness. Early experiences modify and direct this force and determine whether it shall be regressive in the form of infantile fixations or be transformed into lofty ambition and the courage of success. It is the aim of psychoanalytic treatment to liberate the patient from these infantile fixations in order that he may adjust himself to the demands of life in a more harmonious manner.

1. Burrow, *Psychoanalytic Review*. Vol. No. 2, p. 121.

2. Quoted by Fraser. *Journal Abnormal Psychology*, Vol. 6, No. 6, p 409.

3. Kempf. *Integrative Functions of the Nervous System*. *Psychoanalytic Review*, Vol. 2, No. 2.

4. *Diseases of Nervous System*. White & Jelliffe, p. 621.

Congenital Hypertrophic Pyloric Stenosis.*

Floyd S. Clarke, M. D., Omaha.

There are few conditions occurring in infancy of more interest than congenital stenosis. It is not uncommon and its high mortality is sufficient evidence that more attention should be paid to its recognition and treatment. The reason for its occurrence is not at all clear. If the condition was of a malignant nature, one might be able to understand why the pyloric orifice of a baby's stomach should become narrowed and cartilaginous. There is no other orifice in the body whose lumen becomes narrowed because of the presence within its walls of a hard cartilaginous tumor which is not malignant or specific. For a considerable time, the tumor was supposed to be caused by a spasm of the pylorus. A certain amount of spasm is present with the hypertrophy but the spasm is secondary to the hypertrophy and not the cause of it.

Straus, of Chicago, placed insulated wire around vagus nerves and stimulated stomachs of dogs at will without causing any hypertrophy.

Cases of pylorospasm have come to autopsy

and have been operated and no hypertrophy found. So that, at present, we do not know why a hypertrophy of the circular muscular fibers about the pylorus occurs in infancy.

The occurrence of hyperchlorhydria has been thought to be the cause of stenosis. It has been proven that it is rather the result of the hypertrophy and consequent increased stomach peristalsis.

A series of four autopsies has been reported by Wacchenhein on infants whose ages were respectively, three weeks, five days, five days, and three weeks. These babies all had a markedly thickened pylorus. All died of conditions other than those due to pyloric obstruction. Neither did they show any symptoms of stenosis during life.

The symptoms are striking and when grouped together are quite characteristic.

A male infant who has been apparently perfectly well from birth, at about the age of three weeks, suddenly begins to vomit, loses weight and becomes constipated. If the condition is not recognized, someone suggests that the food be changed. No improvement takes place with the taking of the child from the breast and the infant steadily loses weight, the vomiting continues, constipation does not improve. In one of the so-called severe cases, the baby's condition becomes pitiable indeed.

Vomiting.

This is usually the symptom which calls the mother's attention to the fact that her baby is not thriving. Vomiting is quite characteristic. It is projectile in type and is quite forcibly expelled from the infant's mouth. At first, merely the contents of the stomach are vomited, but as the vomiting continues, considerable mucus is present with the vomited material. Vomiting, is not accompanied by retching or effort on the baby's part, the vomitus pours out and is not always projectile. The vomiting has no relation to the interval between feedings. The baby may retain two or three feedings and then vomit considerable more than the last feeding given, showing that there is more or less gastric retention. After the vomiting, the baby will frequently take more

*Read before Omaha-Douglas County Medical Society, April 24, 1917.

food with considerable voraciousness. The vomiting usually occurs after a feeding but may occur at any time. Vomited material is sour and hyperacid.

Pyloric Wave.

This is a most striking symptom and when present, is easily discernable. To obtain it, one should take plenty of time. It is best obtained just after a feeding, with the infant lying quiet with no disturbing influence or noises. It consists in a definite wave or lump, beginning at the left costal margin and passing across the abdomen, disappearing at or a trifle below the umbilicus. Frequently there is a succession of waves—a second appearing before the first disappears. Occasionally, this symptom is so prominent as to cause the mother to notice the wave and ask her physician the reason for its occurrence.

Constipation.

The degree of constipation present will depend, of course, upon the degree of stenosis present. If the stenosis is so tight as to allow for the passage of very little food, the constipation will be a marked symptom. It is usually an early symptom. Reuben speaks of a starvation stool which consists of mucus, bacteria, secretions from the intestines with very little or no residue. Constipation will vary with the amount of spasm present with the hypertrophy.

Loss of Weight and Emaciation.

These symptoms vary with the mildness or severity of the stenosis. Mild cases lose four to five ounces each week. Severe may be one or two ounces each day.

Gastric Retention.

Holt considers this one of our best aids in arriving at a conclusion as to the degree of stenosis present. The child is fed a measured quantity of a food which does not easily coagulate in the stomach. After three or four hours, the stomach contents are aspirated. The amount of food or stomach contents present will determine not only the fact of pyloric obstruction but also the degree.

Palpable Tumor.

A tumor can be felt in about one-fourth of the cases of true hypertrophic stenosis. In palpating this tumor, a bimanual examination with one finger in rectum may be of assistance. A tumor may be felt at certain times and, while examination is in progress, the consistency of the tumor may change suggesting that spasm has some etiologic relationship to its presence. Some writers go so far as to state that if a tumor is not palpable, the case is not one of stenosis.

Diagnosis.

This should be easy if one has the disease in mind. The symptoms are striking and quite characteristic. The sudden occurrence of vomiting in an infant, about three weeks of age, who has been previously healthy should at once call our attention to this disease. When this is accompanied by a peristaltic wave, constipation, loss of weight, gastric retention and a palpable tumor, there should be no hesitancy in the diagnosis. Hess, of New York, has devised a very ingenious instrument which consists of a stomach tube with a small balloon near the catheter eye. If the catheter passes the pylorus, the balloon is inflated and the duodenal contents aspirated. The severe cases will not allow the passage of the tube. The passage or non-passage of the tube will thus assist us in determining whether a given case is one of severe stenosis on the one hand, or mild stenosis or pylorospasm on the other. Lowenberg, of Philadelphia, advises the administration of charcoal powder. If the powder appears in the feces, the case is probably one of mild stenosis or pylorospasm. Hess mentions the value of hiccough as a diagnostic symptom of value in stenosis. Probably our best means of arriving at a conclusion in a given case, is by estimating the amount of gastric retention, if any. Normally, a baby will empty its stomach in about two hours. In stenosis, food is found in the stomach at the end of three hours, and often at the end of six or eight hours. An infant is fed at night a measured quantity of boiled milk diluted twice with barley water. In the morning the stomach contents are removed by

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Our Membership.

There are, in round numbers, nineteen hundred practicing physicians in Nebraska at the present time and only a few more than one thousand are members of the State Medical Association. Of the present membership, two hundred sixty-nine belong to the Douglas-Sarpy County society leaving seven hundred thirty odd members from the remainder of the state. In Douglas and Sarpy counties there are only five ethical physicians who have failed to affiliate themselves with the organization. Every one of these five has been asked at least three times during the past year to join, but has refused because of some reason which he deemed sufficient. The secretary hopes to induce these five to join by another year. If the secretaries of all the county societies could get the same proportion of physicians as members, we would have a membership in the state association of approximately eighteen hundred fifty. Just think of the advantage we would have in such a large membership. There would be a greater feeling of unity. With every shoulder to the wheel we could accomplish much for the uplift of the profession. The Journal would have almost double the present circulation, the defense work could be made efficient enough that a member would not be compelled to carry outside liability insurance; some plan of university extension post-graduate study could be carried out and

a general feeling of unity and good fellowship produced which would be overwhelming in its power.

The secretary of the Douglas-Sarpy County society says that all the men needed was to be asked to join and we believe the same condition prevails throughout the state. If that is the true condition of affairs, why not make the membership of the year 1918 the largest.

Greater Efficiency.

At the recent meeting of the Nebraska State Medical Association several changes in the constitution were recommended, among them being a change in the method of conducting the business of the Association. We wish to heartily commend the proposed change as a move in the direction of greater efficiency. At present, we have a president, a secretary and a treasurer. When a bill is to be paid under the present constitution the secretary must make out a check, send it to the president for signature, the president then sending it to the treasurer who signs it and sends it on the payee. In the conduct of a year's business under such a regime, days of time are lost and much annoyance is endured by all concerned. In addition, unnecessary expense is incurred, it costing from six to twelve cents to pay one bill.

Under the proposed amendment to the constitution the offices of secretary and treasurer would be combined in one, this officer using a voucher check in payment of all obligations, the returned check acting as a receipt. This method would expedite the payment of bills, would reduce expense to a minimum and would do away entirely with the annoyance now constantly experienced. We do not see how anyone giving the matter study can fail to comprehend the advantage to be gained by the proposed change.

At the Bar of Public Opinion.

The work of the American Medical Association in curtailing the "patent medicine" business and quackery merits the endorsement and support of every physician in Nebraska. Until we acquaint ourselves with the efficiency of their propaganda department we cannot appreciate the educational enlightenment of the non-medical mind regarding the worse than futile faith in, and

use of advertised cures. The facts concerning "The Great American Fraud," are given to us by our Council on Pharmacy, presented in our National Journal, and the results of these departments are collected, printed and offered for our guidance in practice. We do not need to continue prescribing inert compounds or even excellent remedies exploited under catchy, and often misused names. Neither are we excusable for writing the word "aspirin," or any abrogated copyright name, to the financial detriment of our patients, and monetary benefit of greedy manufacturing chemists. We sometimes hear the criticism that our National Association does nothing to help the Nebraska doctor. Is it not true that in our county societies (the units of our State and National Associations), we do not make full use of facts at our disposal. If your county society in Nebraska was not represented in our recent State Medical Association Convention and House of Delegates, where should the blame rest?

Appetite or Hunger.

There is nothing unreasonable, at first thought, in looking upon appetite as a mild state of hunger and hunger as an intense appetite. Such a view has been frequently expressed and defended. But recent experimental investigations have made it quite certain that the two sensations involve distinct physiological mechanisms. In 1911, Cannon and Washburn proved by experiments upon man that the periods of contractions in the empty stomach are synchronous with the periods of hunger sensation. Each separate contraction gives rise to a hunger pang. Later, Carlson and his pupils made enormously valuable additions to the subject, one result of which is that physicians may now, in dealing with abnormalities of hunger sensation fix their attention upon a definite hunger mechanism, the peripheral organ of which is the stomach; the central portions of which involve as indispensable links (1) the vagus sensory nuclei (fasciculus solitarius); (2), the optic thalamus and the cerebral cortex. The connecting paths are the vagus and splanchnic nerves.

The stomach is inherently rhythmical like the heart altho its rhythmicity is more dependent upon factors which lie in the blood. In diabetes the gastric hunger contractions are of great vigor and it has been shown that

the blood of a dog suffering from artificially induced pancreatic diabetes when injected into the circulation of a normal dog will produce exaggerated stomach contractions in the latter. The nerve supply to the stomach is not essential to the production of contractions but is regulatory in function. The vagi are mainly afferent, carrying impulses to the brain which ultimately set up the consciousness of the state of hunger while the splanchnic nuclei in the cord are the centers through which the stomach is reflexly inhibited.

With such a demonstrated mechanism at their disposal clinicians may turn to a renewed analysis of such pathological states as bulimia, polyphagia, anorexia, parorexia and the numerous perversions of appetite and hunger so commonly encountered in medical practice.

Carlson says it is clear, "that a certain sensation complex from the viscera and an approximately normal state of central correlations constitute a necessary background for the development of appetite. Given this background the central and essential element in appetite is the memory processes of past experience, (sight, smell, taste) with palatable foods." These memories are reinforced by chemical stimulation of the nerves in the gastric mucosa by the food injected. Everyone knows that appetite, unless intense at the outset, is increased by the act of eating. Hunger pangs and therefore the concomitant hunger contractions, on the contrary, undergo a rapid inhibition. The two mechanisms are quite different.

Congenital Hypertrophic Pyloric Stenosis.

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suction. If food in any considerable amount is still present in the removed contents, stenosis in severe degree is surely present.

Prognosis.

Hutchinson, of London, reports twenty cases with a mortality of two, without operative interference. Holt states that with early recognition of the disease and early operative interference in skilled hands, the mortality should not be over 10% or 15%. The present mortality is much higher. The prognosis will depend on (1) early recognition of the disease, (2) mildness or severity

of the stenosis, (3) degree of emaciation or loss of weight.

Treatment.

Should operation be advised as soon as a diagnosis is made or should medical measures be instituted?

There are undoubted cases on record of well marked stenosis which have recovered without operation. We do not know from whence the tumor cometh nor whither it goeth. Neither do we know that if the infant recovers without operation the condition will give rise to symptoms as age advances. Not every case of stenosis need be operated. Nor need every case be treated medically until the baby has become so emaciated that surgical means are of no avail.

An early diagnosis is essential. Medical means can then be instituted with probably a better chance for success than if surgery is employed. Each case should be carefully studied, the amount of gastric retention estimated and the degree of constipation taken into consideration. An accurate pair of scales is necessary so that the infant's loss or gain in weight can be ascertained.

Medical Treatment.

Do not take the baby from the breast. If the baby has already been weaned, the services of a wet nurse should be employed if possible. The four-hour interval of feeding will succeed best, allowing the infant to remain at the breast for from two to five minutes. In certain cases it is advisable to pump the breasts and feed the baby a measured quantity of breast milk. Occasionally, ice-cold breast milk can be used with success.

Various medicines have been used. Ruhrah speaks very highly of the use of atropin sulph. Gr. 1/2000. This is used to assist in overcoming the spasm present. Tr. opii-camphorata and more recently papaverin (an alkaloid of opium) have been used but with indifferent success.

Stomach Washing.

This has long been recognized as the most valuable procedure in these cases. After

three or four days trial, in favorable cases the vomiting ceases, a slight gain in weight is noticed, the infant becomes better in every way. It is best done about one hour before nursing. The water used should be warmed and rendered alkaline by the addition of five gr. of sodium bicarb. to the ounce. The gastric lavage should be done twice in each twenty-four hours. If improvement supervenes, the washing should be continued twice daily for a considerable period and then once daily for two or three months.

Surgical Measures.

Surgery has a place in the treatment of this condition. I do not believe it should be utilized until other methods have been carefully carried out. The pediatricist should be able to determine which case is surgical and which is medical. The cases of severe stenosis where vomiting persists, loss of weight increases, and constipation is extreme are probably surgical as soon as recognized. The operations performed are a simple divulsion, Ramstedt's operation and gastro-enterostomy.

The tendency among surgeons at present is apparently toward the Ramstedt operation. This consists in cutting the circular muscular fibers down to the mucus coat. The operation is short which is certainly an advantage. The after treatment of these operative cases is important. The surgical results have been somewhat improved since more attention has been paid to the after care.

The Forty-Ninth Annual Meeting of the Nebraska State Medical Association.

PROCEEDINGS OF THE HOUSE OF DELEGATES

First Session.

Lincoln, Nebraska, Tuesday, May 8, 1917.

The Nebraska State Medical Association convened in its Forty-Ninth Annual Session at the Lincoln Hotel, on Tuesday, May 8, 1917, at 11 o'clock a. m. Meeting called to order by President W. F. Milroy of Omaha.

The General Session adjourned and the House of Delegates was immediately convened by President Milroy. Roll call showed total members present, 27.

It was moved by I. H. Dillon that all delegates having accredited credentials be seated. Motion seconded and carried.

The Secretary reported eleven counties delinquent. Moved by A. S. v Mansfelde that the counties read as delinquent be reinstated and delegates seated. Motion seconded and carried.

Nominations for president pro. tem. resulted in that of A. W. Montgomery of Stella. On motion the secretary cast the unanimous ballot of the convention for Dr. Montgomery.

On motion by I. H. Dillon, seconded by Roy Dodge, the minutes of the 1916 session were adopted without reading.

The reports of Secretary, Treasurer and Librarian were read and referred to the Council.

The reports of committees presented by their chairmen and referred to the Council, were:

- Scientific Work, Joseph M. Aikin, Chairman.
- Public Policy & Legislation, Chairman, C. L. Mullins; and the Special Committee to Confer with like committees from other medical societies, E. W. Rowe, chairman, presented together, both being read by E. W. Rowe.

Publication Committee, Joseph M. Aikin, Chairman.

Committee on Care & Prevention of Contagious Disease, Wm. Berry, Chairman.

Censor Committee, Joseph M. Aikin, Chairman. (The report of the Censor Committee was signed by only two members, A. S. v. Mansfelde presenting a minority report).

Medico-Legal Defense Committee, A. S. v. Mansfelde, Chairman.

Committee on Revision of Constitution and By-Laws, I. H. Dillon, Chairman.

Committee on Health & Public Instruction for Education Among Women, Daisy M. Hansen, Chairman.

Secretary Aikin read a telegram from the Regents of the American College of Surgeons, requesting that time be given to Mr. Bowman, their representative, to present his cause at our afternoon session, May 8th. On motion the request was granted, if Mr. Bowman should appear in person.

Secretary Aikin read a letter from the president of the State Nurses' Association, Miss Allison, thanking the N. S. M. A. for assistance rendered in legislative work in connection with Nurses' Bill. On motion, this communication was placed on file.

On motion by W. N. Anderson, seconded by Robert McConaughy, the House of Delegates adjourned to 5 p. m. this day.

Joseph M. Aikin, Secretary.

HOUSE OF DELEGATES.

Second Session.

Lincoln, Nebraska, May 8, 1917.

Pursuant to adjournment, the House of Delegates met at 5 o'clock p. m. President Milroy presiding. Roll call showed 25 members present.

On motion duly made and seconded, the alternate, N. H. Blakeley from Fillmore County, was seated in the House of Delegates.

The following reports of Committees not presented at the first session were read and referred to the Board of Councilors:

Journal Committee, F. A. Long, Chairman.

Committee on Social Insurance, J. Lue Sutherland, Chairman.

The Auditing Committee was announced by President Milroy, as follows:

- R. A. Dodge, Omaha, Chairman.
- L. Little, Clarks.
- J. C. Waddell, Pawnee City.
- F. A. Wells, Axtell.
- Frank Tornholm, Wahoo.

The Council reported the absense of the councilors from the 5th, 10th and 11th Districts. S. F. Sanders of Holdrege nominated F. A. Wells of Axtell to act for the 10th District. L. Little of Clarks nominated Morris Nielsen of Blair, to act for the 5th District. H. E. Mantor of Sidney, the only member present, was asked to act for the 11th District.

Motion by Robert McConaughy of York duly seconded and carried, that the House of Delegates meet at 8 a. m. Wednesday, May 9th.

Joseph M. Aikin, Secretary.

HOUSE OF DELEGATES.

Third Session.

Lincoln, Nebraska, Wednesday, May 9, 1917.

Pursuant to adjournment, the House of Delegates met at 8 o'clock a. m. A. W. Montgomery, president pro tem, presiding. Roll call showed 36 members present.

The minutes of both morning and evening sessions for the previous day were adopted as read.

The following list of names prepared by President Milroy, to constitute a Nominating Committee, was read by E. W. Rowe: Tyler of Omaha, Flansburg of Lincoln, Owings of Dunning, Johnson of Creighton, Nielsen of Blair, Gilligan of O'Neill, Fouts of Dawson, Quick of Crete, Wells of Axtell, Mantor of Sidney, Phlehn of Scottsbluff, and Tornholm of Wahoo.

Fouts presented resolutions concerning doctors joining the Medical Reserve Corps. Moved by Long, seconded by Phlehn that action on this matter be deferred to a later meeting of the House during this session. Motion carried.

The Chair ruled that this resolution be the first order of business at the next session of the House.

The Council reported by its secretary, I. H. Dillon, as follows:

The report of the Committee on Scientific Work referred back to the House with the recommendation that it be placed on file. Moved by Fouts, seconded by Tornholm that the recommendation of the Council be adopted. Motion carried.

The Secretary's Report referred back to the House with the recommendation that it be placed on file. Moved by Mantor, seconded by Stewart that the report be adopted. Motion carried.

Treasurer's Report, recommended by Council that it be referred to Auditing Committee. Moved, seconded and carried that this recommendation be adopted.

The report of the Committee on Revision of Constitution and By-Laws was referred to the House with the recommendation that it be adopted. Moved by Tyler, seconded by Curtis, that sections that have been amended and new ones, be read section by section. Motion carried.

Moved by Milroy, seconded by Blakely, that the By-laws revised be discussed and adopted section by section. Motion carried.

Moved by v Mansfelde, seconded by Dillon, that all that part of the By-laws that have been adopted section by section now be adopted in toto. Motion carried.

Moved by Henry, seconded by v Mansfelde, that greetings be sent to the Iowa State Medical Society now in session in Des Moines. Motion carried.

Moved by Milroy, seconded and carried, that House of Delegates adjourn to 5 o'clock p. m.

Joseph M. Aikin, Secretary.

HOUSE OF DELEGATES.

Fourth Session.

Lincoln, Nebraska, Wednesday, May 9, 1917.

Pursuant to adjournment convention was called to order by A. W. Montgomery, president pro tem, at 5 o'clock p. m.

Roll call showed 21 members present.

Moved by Phelps and duly seconded and carried that Lueschen be seated as delegate from Platte county.

Upon motion by Long, seconded by McGirr, and carried, C. T. Owings was seated as delegate from Custer county.

The Resolution offered by Fouts at the morning session regarding care of practice of physicians called to military service, was presented and unanimously adopted.

Moved by Dodge, seconded by Long, that the committee appointed at the last annual meeting, consisting of the officers of the Association, to investigate the legal status of this Association and advise the House of Delegates at this session what steps be taken toward incorporating, if any, be discharged, and that Treasurer v Mansfelde be appointed a committee of one for this purpose, to report at the next annual convention. Motion carried.

The report of the Librarian is referred back to the House with the recommendation that it be adopted. Moved by McConaughy, seconded by Milroy and carried that this report be placed on file.

Report of Censor Committee is referred back to the House with the recommendation that it be approved and placed on file. The minority report of Censor Committee is also referred back to the House with the recommendation that it be tabled. Moved by Long, seconded by McConaughy that both these reports be placed on file. Motion carried.

The report of the Committee on Publication referred back to the House with the recommendation that it be placed on file. Moved by v Mansfelde seconded by McClanahan that this report be placed on file. Motion carried.

Report of the Medico-Legal Defense Committee referred back to the House with the recommendation that it be adopted. Moved by Waddell, seconded by Curtis, that this report be adopted. Carried.

The Resolution offered by Weber is referred back to the House with recommendation that it be adopted. Moved by McConaughy, seconded by Fouts that this resolution be approved by a rising vote. Motion carried, and the resolution was unanimously adopted.

The report of the Journal Committee is referred back to the House with the recommendation that it be placed on file. Moved by McClanahan, seconded by Milroy that this report be placed on file. Motion carried.

Report of Special Committee on Public Policy & Legislation, and the regular committee on the same, be referred back to the House with the recommendation that they be placed on file. Moved by Milroy seconded by Little that these reports be placed on file. Motion carried.

Report of Committee on Social Insurance was considered and referred back to the House with the recommendation that it be placed on file and the committee discharged. Moved by Little, seconded by Douglas that the recommendation be adopted. Motion carried.

Member Gilligan presented proposed amendments to the Constitution, which were read and laid over to the next annual meeting.

Moved and seconded that adjournment be taken to 8:30 a. m. Thursday, May 10th. Motion carried.

Joseph M. Aikin, Secretary.

HOUSE OF DELEGATES.

Fifth Session.

Lincoln, Nebraska, May 10, 1917.

The House of Delegates was called to order at 8:30 a. m. Thursday, by President Milroy. Moved by Tyler, seconded, that Cutter of Douglas County be seated as a delegate. Motion carried.

Roll call showed 38 members present.

The minutes of the previous session were read and on motion duly made and seconded, were adopted as read.

The first order of business was the report of the Nominating Committee and the election of officers.

The Nominating Committee, by its secretary, R. W. Fouts, reported as follows:

For President: C. L. Mullins, Broken Bow; S. S. Wilson, Nebraska City; C. P. Fall, Beatrice.

For Vice Presidents: Lucien Stark, Hartington; A. W. Montgomery, Stella.

For Councilors: 9th District, M. S. Moore, Gothenburg; 10th District, S. F. Sanders, Holdrege; 11th District, H. E. Mantor, Sidney; 12th District, A. J. Stewart, Mitchell.

Delegate to A. M. A.: For 2 years, LeRoy Crummer, Omaha; alternate, F. A. Long, Madison.

Member Journal Committee: For 3 years, Benjamin F. Bailey, Lincoln.

The Chair appointed as tellers: B. W. Christie, Omaha, and J. C. Waddell, Pawnee City.

Election was by ballot. Upon the first ballot S. S. Wilson received 4 votes, C. P. Fall 5 votes, and C. L. Mullins, 24 votes. It was moved by R. H. McConaughy and duly seconded that the election of C. L. Mullins as president, be made unanimous.

President Milroy announced that C. L. Mullins having received a majority of all the votes cast, and that a motion had been made and seconded that this election be made unanimous, put the motion before the House and it was carried.

I. H. Dillon moved that the secretary be instructed

to cast the entire ballot of the House for the two candidates for vice presidents. Secretary pro tem Dodge then cast the unanimous vote of the House for Lucien Stark and A. W. Montgomery as vice presidents.

Moved by Owings and duly seconded, that the Secretary be instructed to cast the unanimous ballot of the House for Le Roy Crummer as delegate and F. A. Long as alternate, to the A. M. A. for two years. Motion carried. Secretary pro tem Dodge then cast the unanimous vote of the House for Le Roy Crummer as delegate and F. A. Long as alternate to the A. M. A. for two years.

Moved by Owings and duly seconded that the secretary be instructed to cast the unanimous ballot of the House for the four Councilors nominated. Motion carried. Secretary pro tem Dodge then cast the vote of the House for M. S. Moore, Councilor 9th District; S. F. Sanders, Councilor 10th District; H. E. Mantor, Councilor 11th District; A. J. Stewart, Councilor 12th District.

Moved by Dillon, seconded by Cutter that the Secretary be instructed to cast the unanimous ballot of the House for B. F. Bailey as a member of the Journal Committee for 3 years. Motion carried. Secretary pro tem Dodge then cast the majority vote of the House for Benjamin F. Bailey as member of Journal Committee for 3 years.

The Board of Councilors resumed its report by Secretary Dillon. F. A. Long moved that the recommendation of Council on the statistical part of the Treasurer's report be adopted by the House. Motion seconded by Tyler, and carried.

There was some discussion on the Treasurer's Report, and the following Amendment was moved by Irving S. Cutter, seconded by A. S. v Mansfelde and others:

"Providing further, that any Society shall be automatically reinstated in good standing, upon the payment of its dues; and that the receipt from the County Secretary shall be prima facie evidence of good standing upon the part of the individual member in the Medico-Legal Defense Division of the Association."

The motion on this amendment was carried.

The Council presented the report of the Auditing Committee, and recommended that this report, together with that part of the Treasurer's report referring to the finances of the Association, be referred back to the House of Delegates for such action as they see fit. Moved by Cutter, seconded by Phlehn that the report of the Auditing Committee be adopted. Motion carried.

The Council submitted the budget for the ensuing year and recommended its adoption. Moved by Dillon and duly seconded and carried that this recommendation be adopted.

The Council presented its report on the President's Address, and its adoption was moved by Dillon, seconded by Long, and carried.

The Council presented the report of Necrology Committee, with recommendation for its adoption, and it was moved by McConaughy and duly seconded and carried that this recommendation be adopted.

The Council recommended a vote of thanks to the management of the Lincoln Hotel for the courtesies

extended during the meeting. On motion, this recommendation was adopted by unanimous vote.

The Council recommended a vote of thanks to the local committee on arrangements for the splendid entertainment given the delegates and visitors. On motion duly made and seconded this recommendation was adopted by unanimous vote.

Secretary pro tem Dodge extended to the Association an invitation from the Douglas-Sarpy Medical Society to hold the next annual convention in Omaha. Moved by Long, seconded by v Mansfelde that this invitation be accepted. Motion carried.

A motion coming from the Medical Section, asking that the paper presented by C. G. Griffith, entitled "Society's Duty to Mentally Deficient Children," be printed in pamphlet form and distributed to the Presidents of Women's Clubs and Teachers throughout the state, was presented for consideration. It was moved by von Mansfelde, seconded by Waddell, that this request be honored. Motion carried.

Moved by Stark, seconded by a majority of the House, that the State Board of Health be asked to print and distribute this pamphlet as one of its official publications. Motion unanimously carried.

Moved by von Mansfelde and duly seconded that the House adjourn sine die. Motion carried.

Joseph M. Aikin, Secretary.

Proceedings of Board of Councilors.

First Session.

Lincoln, Nebraska, Tuesday, May 8, 1917.

A meeting of the Board of Councilors was called for 1:30 p. m. but no quorum being obtained, the Council adjourned to 5 o'clock p. m.

Pursuant to adjournment the Council convened at 5 o'clock p. m. and was called to order by President Moore. Roll call showed the following members present. Moore, Dillon, Douglas, Stewart, Gilligan, Curtis, Lehnhoff, Potts, Weber and Stark.

Absent: Hopkins, Byers, Hedlund.

The report of the Secretary was read and discussed and it was moved and seconded that we recommend to the House of Delegates that this report be accepted and approved. Motion carried.

The report of the Treasurer was read and after discussion it was moved and seconded that we recommend to the House of Delegates that this report be turned over to the Auditing Committee. Motion carried.

The report of Librarian was considered and moved by Weber seconded by Lehnhoff that we recommend its adoption by the House of Delegates. Motion carried.

The report of the Committee on Scientific Work was discussed, and it was moved and seconded that we recommend to the House of Delegates the adoption of this report. Motion carried.

The report of the Committee on Publication was considered and it was moved by Weber, seconded by Stark that we recommend its adoption by the House of Delegates. Motion carried.

The report of Committee on Care & Prevention of Contagious Diseases was discussed, and it was moved by Stark, seconded by Weber, that its adop-

tion be recommended to the House of Delegates. Motion carried.

The majority report of Censor Committee was considered and moved by Dillon, seconded by Weber, that its adoption be recommended by the House of Delegates. Motion carried.

Report of Medico-Legal Defense Committee was taken up and after discussion it was moved by Stark, seconded by Weber, that the report be referred back to the House of Delegates, with recommendation for its adoption. Motion carried.

The report of the Special Committee on Revision of the Constitution and By-laws was read and after discussion, it was moved by Douglas, seconded by Stark, that this report be sent back to the House of Delegates with the recommendation that it be adopted. Motion carried.

A resolution offered by Dr. Weber was read by Secretary Dillon, expressing allegiance to the President and our Government, etc., and it was moved by Douglas, seconded by Dillon, that the resolution be sent to the House of Delegates, with recommendation for its adoption. Motion carried.

The Board of Councilors adjourned to 8 p. m. May 8, 1917.

I. H. Dillon, Secretary.

BOARD OF COUNCILORS.

Second Session.

Tuesday, May 8, 1917.

Pursuant to adjournment, the Council was called together at 8 o'clock p. m. by President Moore.

Present: Lehnhoff, Dillon, Stark, Curtis, Douglass, Moore, Stewart.

Absent: Potts, Byers, Weber, Hopkins, Hedlund.

The minority report of Censor Committee was considered, and it was moved by Stark, seconded by Douglas, that this report be referred back to the House of Delegates, with recommendation that it be tabled. Motion carried.

The report of Joint Committee on Public Policy & Legislation was considered, and it was moved by Dillon, seconded by Lehnhoff, that the report be referred back to the House of Delegates with the recommendation that it be adopted. Motion carried.

The report of Journal Committee was considered and moved by Douglas, seconded by Curtis, that this report be returned to the House of Delegates, with the recommendation that the Journal Committee be authorized to carry out the suggestions contained in their report. Motion carried.

The report of Committee on Social Insurance of the Nebraska State Medical Association was considered, and moved by Curtis, seconded by Stark, that the report be referred back to the House of Delegates with recommendation that it be received and committee discharged. Motion carried.

Moved by Curtis, seconded by Gilligan, that the Council adjourn subject to call. Motion carried.

I. H. Dillon, Secretary.

BOARD OF COUNCILORS.

Third Session.

Wednesday, May 9, 1917.

At the call of the chairman, the Council convened at 6 o'clock p. m., President Moore, presiding.

Present: Stewart, Douglas, Dillon, Stark, Curtis, Gilligan and Moore.

Absent: Potts, Lehnhoff, Byers, Weber, Hopkins, Hedlund.

The Council took up for consideration the address of President Milroy, and it was moved by Dillon, seconded by Curtis, that it be referred to the House with the recommendation that it be sent to the Committee on Publication with the request that it be published in the May issue of the State Medical Journal, and that the president be instructed to invite the State Medical Association of Colorado to send a fraternal representative to the next annual meeting of this Association. Motion carried.

The report of Treasurer A. S. v Mansfelde was considered, in connection with the report of the Auditing Committee and it was moved by Dillon, seconded by Douglas that the statistical part of the Treasurer's report be referred to the House of Delegates with the recommendation that it be approved and placed on file with the following recommendations: That we continue the present system of remitting dues from the County Secretaries to the state officers; that all members of the State Association be notified through the Journal of the Nebraska State Medical Association, that their membership in the Medico-Legal Defense organization of this Association will terminate the moment their membership lapses on December 31st of each year, if their dues have not been paid prior to that time for the ensuing year. Motion carried.

Moved by Dillon, seconded by Stark, that the remainder of the Treasurer's report and the report of the Auditing Committee be referred to the House of Delegates for such action as they may see fit. Motion carried.

Moved by Curtis, seconded by Gilligan, that the report of the Committee on Health and Public Instruction for Education Among Women be referred back to the House of Delegates and be placed on file. Motion carried.

Moved by Stark, seconded by Douglas, that the budget for the ensuing year made up as follows, be submitted to the House of Delegates, with recommendation for its favorable action.

State Medical Journal.....	\$1.25 per subscriber
Committee on Public Policy & Legislation.....	\$ 50.00
Secretary's Office	400.00
Secretary's Salary	300.00
Treasurer's Salary	50.00
Treasurer's Expenses	25.00
Librarian's Expenses	25.00
Chairman Medico-Legal Defense Committee:	
Salary	300.00
Expense	200.00
Official Stenographer and Assistant.....	150.00

It was moved by Dillon, seconded by Stewart that the Council recommend to the House of Delegates that a vote of thanks be extended to the Lancaster County Medical Society for the splendid entertainment given this Association during our meeting here. Motion carried.

It was moved by Stark, seconded by Douglas, that we recommend to the House that a vote of thanks be extended to the Lincoln Hotel for their courtesy shown the members and visitors during our convention here. Motion carried.

Moved and seconded that the Council adjourn sine die. Motion carried.

I. H. Dillon, Secretary.

Thursday, May 10, 1917.

The new Council was called to order by President Moore. It was moved by Stark, seconded by Douglas, that President Moore and Secretary Dillon be re-elected to these offices for the ensuing year. Motion carried.

Upon motion duly seconded, the Council adjourned to the call of the president.

I. H. Dillon, Secretary.

NEBRASKA STATE MEDICAL ASSOCIATION

May 8, 9, 10, 1917.

Our 1917 general registrations were 335. That is our second highest registration on record.

House of Delegates, registration, 46. Of these, 10 were ex-Presidents. Nine of our twelve Councilors were present.

The Lincoln Hotel was conveniently arranged for all our meetings. We had ample space and facilities for hospitality, with good will and delightful entertainment. Many new faces from 85 new members were with us this year. Several of the older members who for years have graced our annual gatherings, were not present. We missed their greetings. Removals and deaths diminished our ranks by 57.

The address of welcome by Governor Neville, oration by President Milroy, instructive and forceful addresses by physicians present, were enjoyed by large and appreciative audiences. The several addresses by Dr. Joseph Bloodgood of Baltimore, pleased and edified the many who heard him.

The banquet and entertainment gave us a delightful evening, happily planned and tactfully presented. The section meetings were well attended.

Our 1918 Convention will be our Jubilee Gathering. It will be in Omaha. Two members have signified their desire to appear on our scientific program for that meeting.

Our House of Delegates, by unanimous vote, made an assessment of four dollars per capita on the membership as our annual dues. It further ordered that said assessment be paid to our State Association on or before December 31st of each year. That means our 1918 dues must be paid in 1917. Of this amount \$1.75 goes to the General Fund to finance the several departments of association work; \$1.25 pays through the Treasurer of the State Society the individual members subscription to the Nebraska State Medical Journal; \$1.00 is set apart in our Medico-Legal Defense Fund, and used only for legal defense against alleged malpractice suits.

Our elected delegates to the A. M. A. are I. H. Dillon and LeRoy Crummer. A. R. Mitchell served for many years as one of our delegates, till his election as a trustee of the A. M. A. made him ineligible as a delegate, but did not cancel his right to a vote in the House of Delegates. H. M. McClanahan

was elected by the children's section of the A. M. A. as a member of the House of Delegates, has for two years represented Nebraska interests in that organization. That allows us four votes from the Nebraska State Medical Association in the legislative body of the American Medical Association. How can any wide-awake physician in Nebraska afford not to join his county society, state association, and our American Medical Association. Nebraska is near the top in the list of 29 states owning and publishing their own Journal—in the percentage of its physicians who maintain county and state association membership. The fact attests the progressive spirit of our physicians, and the efficient work of our 60 county society officers, representing 66 counties.

Our State Association officials, elected for one year beginning January 1, 1918, are:

Chas. L. Mullins, Broken Bow, President.
Lucien Stark, Hartington, Vice President.
Wm. A. Montgomery, Stella, Vice President.
Joseph W. Aikin, Omaha, Secretary.
A. S. v Mansfelde, Ashland, Treasurer.
Wm. P. Wherry, Omaha, Librarian.

LeRoy Crummer, Omaha, Delegate to the A. M. A., for two years.

F. A. Long, Madison, Alternate to the A. M. A., for one year.

I. H. Dillon, Auburn, Delegate (Holden) A. M. A. for one year.

Joseph M. Aikin, Omaha, Alternate (Holden) A. M. A., for one year.

E. W. Rowe, Lincoln, Delegate to Council on Medical Education, for one year.

B. F. Bailey, Lincoln, was re-elected a member of the Journal Committee for three years.

M. S. Moore, Gothenburg, President of Council (reelected).

I. H. Dillon, Auburn, Secretary of Council (reelected).

Members of Council elected were: M. S. Moore, Gothenburg, (reelected) 9th district; S. F. Sanders, Holdrege, 10th district; H. E. Mantor, Sidney, 11th district; A. J. Stewart, Mitchell, (reelected) 12th district.

By vote of our House of Delegates, the Council was created our Board of Trustees.

A. S. v Mansfelde was made a committee of one to investigate the advisability of incorporating our State Medical Association, to report at our next annual meeting.

President Milroy continues his executive duties until December 31, 1917.

President-elect C. L. Mullins of Broken Bow, is busy selecting standing and special committees, who will begin their official duties January 1, 1918. The names of those composing said committees will be printed in our Journal in July or August.

The amendments to our By-Laws that were adopted will be printed when certain proposed changes in the Constitution have been acted on at our next annual meeting.

Joseph M. Aikin, Secretary.

A RESOLUTION OF RECOMMENDATIONS FOR COUNTY MEDICAL SOCIETIES, ADOPTED BY THE HOUSE OF DELEGATES OF NEBRASKA STATE MEDICAL ASSOCIATION IN REGULAR SESSION MAY 9, 1917, PROVIDING FOR THE CARE OF THE PRACTICE OF PHYSICIANS WHO ABSENT THEMSELVES FOR MILITARY SERVICE.

In view of sacrifices made by physicians absenting themselves for military service, and in order to encourage enlistment in the Medical Reserve Corps, we offer the following recommendations to County Medical Societies, to be adopted by them as soon as possible.

1. Every physician who is called to the Colors will receive from his colleagues who do his practice, one-third of all gross collections from such practice as long as he holds a commission under that of major, and no longer. When he returns his practice to be returned to him intact.

2. Any patient consulting a physician who is not one of that doctor's regular patients is to be asked to state if one of the physicians in the services of the Government is his regular physician, making it clear to the patient why he is asked the question.

3. Every physician entering the Government Medical Service is expected, or should make an effort, to procure from his patients, signed statements, on cards provided by the State Medical Association, to the effect that he is their regular physician, these to be filed with the Secretary of the County Society, who shall furnish copies of the same to his local colleagues.

4. All money collected and due absent physicians shall be paid to Secretary County Medical Society the first of each month, with a statement to whom services were rendered, same to be at absentee's disposal.

5. It is hoped that all physicians whether or not they are members of County Societies, will co-operate in this service.

(Signed),

R. W. Fouts.

RESOLUTIONS.

Be It Resolved, That we, the members of the Nebraska State Medical Association in the Forty-ninth Annual Convention assembled in Lincoln this May 8th, 9th and 10th, 1917, do hereby pledge our support to the government in this time of war with the Imperial German government.

Be It Further Resolved, That we extend greetings and felicitations to the President of the United States, assuring him of our personal fidelity and confidence in his great judgment in the things which pertain to the establishment of the individual rights of man in the world.

We further express our confidence in the power and strength of the citizenship of our country regardless of their place of birth or nativity. Our flag binds us one and all into the folds of pure Americanism which stands for the everlasting rights of man and a world "safe for democracy."

Be It Further Resolved, That we personally offer our services in any capacity to which they may be

called for the uplifting of mankind in this time of war and for the special purpose of relieving suffering and prolonging life.

Be It Resolved, That a copy of these Resolutions be mailed to the President, handed to the press and made a part of the permanent records of this Association.

E. O. WEBER.

Introduced by E. O. Weber, Councilor for the Sixth District—Saunders, Butler, Seward, Polk, York and Hamilton counties.

Proposed Constitutional Amendments.

(To be acted upon at next annual meeting.)

Article VIII. Officers. Section 1, read as follows:

The officers of this Association shall be a President, two Vice Presidents, a Recording Secretary, Treasurer, a Corresponding Secretary, and twelve councilors.

To amend Article VIII, Section 1 of the Constitution of the Nebraska State Medical Association so as to read:

Section 1. The officers of this Association shall be a President, a President-Elect, two Vice Presidents, a Recording Secretary-Treasurer, a Corresponding Secretary and Librarian.

J. P. Gilligan.

To amend Article VIII, Section 2 of the Constitution of the Nebraska State Medical Association so as to read:

Section 2. The President, President-Elect and Vice Presidents shall be elected for a term of one year. The Secretary-Treasurer and Councilors shall be elected for a term of three years each, the Councilors being divided into classes so that four shall be elected each year. All of these officers shall serve until their successors are elected and installed.

J. P. Gilligan.

Dr. A. S. von Mansfelde Married.

Word has been received through the Lincoln Journal of the marriage of Dr. A. S. von Mansfelde, of Ashland, to Miss Sylvia A. Butts of Council Bluffs, Iowa. The wedding occurred in Lincoln, Tuesday evening, May 29, Dr. T. A. Jeffrey, pastor of St. Paul's officiating. The groom is well known to the membership of the State Medical Association and has served the Association in numerous official positions. At present Dr. von Mansfelde is Treasurer of the Association and Chairman of the Medico-Legal Defense Committee. Many members will recall the congratulatory dinner given in honor of Dr. von Mansfelde on the occasion of his seventieth birthday. The bride is an Ashland girl and resided in that city until a short time ago.

McIntire Prize.

Last year Dr. Charles McIntire resigned the secretaryship of the American Academy of Medicine after twenty-five years of faithful service. In appreciative commemoration the American Academy of Medicine decided to raise a fund, the income of which should be expended in accordance with Dr. McIntire's suggestions. As a consequence the Academy now announces two prize offers, the prizes to be awarded at the annual meetings for 1918 and 1921, respectively.

The subject for 1918 is "The Principles Governing the Physician's Compensation in the Various Forms of Social Insurance." The members of the Committee to decide the relative value of the essays awarding this prize are—Dr. John L. Heffron, Dean of the College of Medicine, Syracuse University; Dr. Reuben Peterson, Professor of Obstetrics and Diseases of Women, University of Michigan, and Dr. John Staige Davis, Professor of Pediatrics and Practice of Medicine, University of Virginia.

The subject for 1921 is "What Effect Has Child Labor on the Growth of the Body?" The members of the committee to award this prize are—Dr. Thomas S. Arbuthnot, Dean of the Medical School of the University of Pittsburg; Dr. Winfield Scott Hall, Professor of Physiology, Northwestern University, and Dr. James C. Wilson, Emeritus Professor, Practice of Medicine and of Clinical Medicine, Jefferson Medical College.

The conditions of the contests are:

(1) The essays are to be typewritten and in English, and the contests are to be open to everyone.

(2) Essays must contain not less than 5,000 or more than 20,000 words, exclusive of tables. They must be original and not previously published.

(3) Essays must not be signed with the true name of the writer, but are to be identified by a nom de plume or distinctive device. All essays are to reach the Secretary of the Academy on or before January 1st of the years for which the prizes are offered and

are to be accompanied by a sealed envelope marked on the outside with the fictitious name or device assumed by the writer and to contain his true name inside.

(4) Each competitor must furnish four copies of his competitive essay.

(5) The envelope containing the name of the author of the winning essay will be opened by Dr. McIntire, or in his absence by the presiding officer at the annual meeting and the name of the successful contestant announced by him.

(6) The prize in 1918 for the best essay submitted according to these conditions will be \$100.00; that of 1921 will be \$250.00.

(7) In case there are several essays of especial merit, after awarding the prize to the best, special mention of the others will be made and both the prize essay and those receiving special mention are to become at once the property of the Academy, probably to be published in the Journal of Sociologic Medicine. Essays not receiving a prize or special mention will be returned to the authors on application.

(8) The American Academy of Medicine reserves the right to decline to give the prize if none of the essays are of sufficient value.

The present officers of the American Academy of Medicine are: George A. Hare, M. D., Fresno, Calif., President; J. E. Tuckerman, M. D., Cleveland, President-Elect; Charles McIntire, M. D., Easton, Pa., Treasurer, and Thomas Wray Grayson, M. D., 1101 Westinghouse Building, Pittsburg, Pa., Secretary.

For Sale: One Betz, 2 patient Ozone machine. Practically new. Also 5 gal. Ozone oil, extra tubes, etc. Total cost \$145.00. First check for \$100.00 takes it.

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J. J. METZINGER, M. D.,
Fremont, Neb.

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Owing to other business of the owner, the Hospital at Valentine, Nebraska, is offered for sale at a reasonable price and on the most favorable terms.

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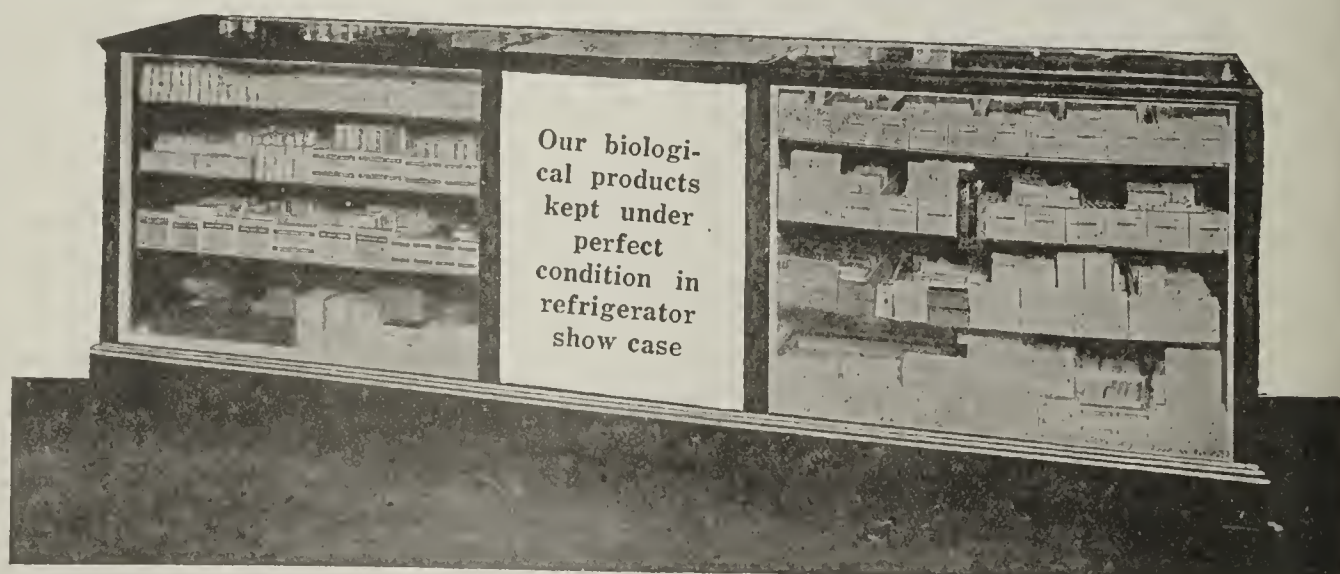
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Arteriosclerosis and Hypertensions from the Standpoint of the General Practitioner.*

J. C. Waddell, M. D., Pawnee City.

The statement made centuries ago that a man is as old as his arteries is true, and is being verified almost every day in the clinical experiences of physicians.

Arteriosclerosis or cardio-vascular-renal disease as it is called by Bishop, is the most common of all morbid states among those attaining adult life. During the last three decades there has been an increase of over 100% in the death rate from diseases of the heart, vessels and kidneys. It is said that over 300,000 die annually from the direct results of arteriosclerosis.

Excluding infectious diseases we doubt if there is any other disease more worthy the careful attention of physicians. As a general practitioner, we have been impressed with the large number of patients past 40 years of age, who present symptoms of hypertension or arteriosclerosis.

In times past the tendency has been to assume that nothing or very little can be done for these patients and they have been allowed to go to a premature death. The most important half of life is the last half for which the first is but a preparation. This then is my excuse for the presentation of this subject.

Before proceeding further we think it best to define the terms hypertension and arteriosclerosis as we shall use them in this paper.

We wish to make an absolute distinction between hypertension and arteriosclerosis. We shall accept for our discussion the definitions of Faught that true hypertension or hyperpiesis is a well recognized symptom complex in which the rise in systolic pressure is moderate and persistent, but not necessarily permanent. Hypertension depends solely upon a muscular change in the arterial walls and capillaries whereby they are temporarily narrowed and contracted.

Arteriosclerosis is a general disease of the arteries and arterioles, circumscribed or dif-

*Read before Nebraska State Medical Association, Lincoln, May, 1917.

fuse, characterized by thickening and with permanent pathological changes of tissue.

Hypertension may be overcome by appropriate treatment, while in arteriosclerosis there is a permanent pathological change in the arterial coats either in part or as a whole and which is never entirely overcome by treatment. In fact it is doubtful if it is at all affected.

The existence of hypertension as a clinical entity is recognized by many modern authorities as Janeway, Faught, Butler and Cook.

It is convenient from a clinical standpoint to consider hypertension and arteriosclerosis as distinct. While hypertension if continued merges into arteriosclerosis, we are impressed with the importance of an early diagnosis in these conditions. Hypertension is, I believe, always a sign of the beginning of a condition which will surely lead to a pathological change and is the danger signal, warning us that some alteration must be made in the daily life or the primarily curable condition will progress and become an incurable one.

Etiology.

Regarding the causes of arteriosclerosis they may be summed up in one word "intoxications" although much yet remains to be explained concerning the precise nature of the processes leading to its production. The causes of hypertension are essentially those of arteriosclerosis but differ in that they have acted over a shorter period of time and are probably less intense in character. The main provocative causes of the intoxication which leads to hypertension and arteriosclerosis are (1) the wear and tear of ordinary existence, (2) certain of the acute and chronic infectious diseases; those conditions which tend to keep the blood pressure high and (3) inheritance of a predisposition or weak arterial tubes.

Bishop of New York believes that arteriosclerosis is a disease consisting of a disturbance of metabolism, i. e. a disturbance of the individual cells leading eventually to changes in the heart, blood vessels, kidneys and other organs. He thinks that the real or basic origin of the disease is in the relation of the cell to proteins analagous to a sensitization such as is the basis of hay fever, and other anaphylactic phenomena. The cause for these changes in metabolism is found in what Crile calls the "kinetic drive." The individual is subjected to some sensitizing event such as a severe infectious disease, a period of great

anxiety, or poisoning by some foreign protein. This, Crile believes, causes a disturbance of internal glandular secretion which in turn disturbs cell metabolism; certain glands increase their secretion while others are inhibited. Schlayer advances the plausible theory that hypertension when persistent is due to a condition in which the arterial system has become sensitized by some means rendering it hypersusceptible to epinephrin or toxins which may be circulating in the blood.

L. F. Bishop states that hardening of the arteries nine times out of ten is due to a disturbance in the chemistry of the body, of the adrenals, the thyroid, toxemias, etc., particularly in relation to the intestines and the liver. According to him the most important cause is amino-acid poisoning. He believes that in certain individuals the tissues become sensitive to these acids and that this idiosyncrasy accounts for the susceptibility in certain individuals as compared with others. Without dwelling too long upon this phase of the subject, we must admit that there is yet a lack of definite absolute knowledge as to how the various causes which bring about arteriosclerosis and hypertension produce this condition in the tissues.

One of the many obstacles to a full understanding and satisfactory demonstration of the true relation of the exciting causes, is the diversity of substances at present held to be responsible for the condition and which may frequently be coincidentally important.

Of greatest value in the diagnosis of hypertension and arteriosclerosis is the Sphygmomanometer. This apparatus often gives us surprising information. A radial artery that lies close to the surface and over a prominent bone often feels of much higher tension than one of equal tension deeply imbedded in fat. The most accurate method of use is the auscultatory. The method is available in every case regardless of the size of the artery, the arm, or the volume of the pulse and can be applied with any variety of sphygmomanometer and any stethoscope with a small receiver. Formerly great emphasis was placed upon the systolic pressure alone. We now know that the diastolic and especially the pulse pressure is of greatest importance in cardiac prognosis because this is the real force which drives the blood toward the organs and causes the mass movement of blood.

The normal pulse pressure should be between 30 and 50 m. m. of mercury.

The importance of the early recognition of the condition of hypertension before it has become arteriosclerosis is the point which I wish to emphasize in this paper.

From a purely clinical standpoint and from the standpoint of the general practitioner it is convenient and practical to divide these conditions into four stages. (1st) The stage of hypertension or presclerosis. (2nd) The cardio arterial stage. (3rd) The cardio-reno-arterial stage. (4th) The final stage of cardiac failure. Such a classification will be found very valuable to the practicing physician because the mere placing of a case in one of these divisions, will at once greatly aid in giving a prognosis and also suggest the character of special treatment indicated.

The arterial stage, or stage of hypertension or the stage of presclerosis as it is called by some, is the stage we consider as a separate entity, and is characterized by contraction of the arteries and by more or less spasm of the arterioles due to toxins in the blood. A condition of hypertension is produced. At first this may be transitory, later it may become constant. The hypertension becomes excessive and the systolic action of the heart is accentuated. This is recognized by the accentuation of the second heart sound especially the aortic. Increased cardiac activity, restricted visceral circulation and contraction of the visceral mains can only result in structural hypertrophy to vessels and heart to compensate for these abnormal changes. When the maximum of hypertrophy is reached then irreparable changes in heart and arteries occur.

From a therapeutic standpoint this is by far the most important condition. For as yet until sclerosis takes place, much can be done to correct the factors producing the high blood pressure and remove the causes which surely tend to produce sclerosis. We believe there are many men and women in every community in this presclerotic state. To summarize the symptomatology of hypertension four groups of symptoms may be mentioned:

- 1st. Arterial hypertension.
- 2nd. Intoxication symptoms.
- 3rd. Decreased functioning power of various organs.
- 4th. Intermittent claudication, or a limping often spoken of by the patient as a cramp

in the leg. Or there may be cramps in muscles in any part of the body. Osler says that it is due to a sudden contraction of the arteries of the lower extremities shutting off the blood supply.

The cardio arterial stage of arteriosclerosis is characterized by organic changes in the arterial walls. These have taken place due in most part at least to the continued high arterial tension. We may now have also evidences of myocardial changes. These conditions only tend to increase the intoxication and hasten the sclerosis and thus a vicious circle is formed. A permanent hypertension is here noted with or without palpable hardening of the arteries, with or without marked intoxication symptoms. In this stage the symptoms are both interesting and varied. They may be cerebral, cardiac, or splanchnic. In this stage may occur asystole or cerebral hemorrhage.

In the cardio-reno arterial stage we find an exaggeration of the symptoms mentioned in the second stage with the added symptom of beginning cardiac dilatation and renal disease. Now the arterial tension begins to lower and there is a tendency to edema. Valvular murmurs may now appear. Many patients do not get beyond this stage.

In the final stage there is simply an increase in the symptoms of the previous stages. Marked dilatation of the heart, edema, more or less general, ascites, congestion of the lungs, liver and stomach all result in cardiac decompensation and death.

There is probably no pathological condition in which the preventive method of treatment is of more value than in this widespread disease.

Arteriosclerosis in one or another of its forms, whether general or local, incipient or established, suddenly or gradually undermining the vascular structures of the body to the point of failing compensation, impending apoplexy, cerebral softening or whatever the result may be should receive the most thorough consideration from the standpoint of prophylaxis. When a patient presents symptoms of a continued high blood pressure, accentuation of the aortic second sound and impermeability of the kidneys, these symptoms with the continued high blood pressure speak of impending or actual arteriosclerosis.

Cases of arteriosclerosis are often not seen until the disease is well established, but it is

also true that we see cases presenting the history of gout or prolonged intestinal intoxication, or excesses of various kinds and with increased blood pressure. These are the cases in which prophylaxis will accomplish much. In every way excessive functional activity of the circulation should be curbed.

The patient should be clearly and emphatically instructed in the rules of more restrained life in the hope that the causal factors may be eradicated.

I want to emphasize here the importance of a campaign of education calling the attention of the public to the value of periodic medical examinations.

Most intelligent people now go to the dentist regularly once or twice a year to have the teeth examined. This is as it should be but are the teeth the only important organs of the body? Why not a complete examination of the whole body? A man will take his automobile to a garage to have it overhauled at regular periods. Which is of the more importance, an examination of his automobile or his own physical machine. I believe it is the duty of the medical profession to teach the public the importance of regular examinations. It is the duty also of each physician to qualify himself to make a complete physical examination, including a careful history and physical examination with blood tests, and chemical and microscopical examination of urine and blood pressure tests. In this way not only hypertension and arteriosclerosis but tuberculosis and many other diseases may be early detected, and hygienic dietetic and medical treatment instituted where they are of the greatest value.

In more advanced cases of arteriosclerosis little can be done in the line of prophylaxis. The prevention of apoplexy, for a few years, the control of coronary spasm, the relieving the strain on the myocardium, and the kidneys, may for a time enable patients with confirmed arteriosclerosis to live in fair comfort and to do effective work. Such work is true conservation.

Dietetic Treatment.

Next in importance to the prophylactic treatment of this disease is the dietetic. Moderation in eating and drinking is imperative. As a general rule the protein foods should be reduced to the minimum. Briefly, a diet consisting largely of vegetables and fruits is best for these individuals. In some cases late in the disease a milk diet is required. Moderation in the degree and intensity of all physical and mental exercises should be invariably practiced. Proper clothing should be worn to keep the body carefully protected from changes of temperature.

Medical Treatment.

Elimination is of greatest importance in this disease. An occasional dose of a saline is of great value. Calomel occasionally in other cases has a very beneficial effect followed by the saline purge. Potassium iodide in the early stages of this disease certainly has beneficial effect. To be effective it must be given over a considerable period of time. Some think that the iodides tend to reduce the viscosity of the blood and in this way reduce blood pressure. Iodism can be prevented where large doses are given by the exclusion of acids from the diet and by the administration of alkalies as an alkaline mineral water. From the fact that the urine of many of these patients is excessively acid, the daily administration of alkalies would seem rational and as a matter of fact much temporary benefit is seen from their administration in patients showing symptoms of acidosis. This is in accord with the theories of Fischer.

Thyroid Extract.

We have used this in several cases of arteriosclerosis in women where there were signs of a lack of function of the thyroid gland. These patients are usually possessed of a large amount of unhealthy adipose tissue due to a lack of oxidation or deficient metabolism from insufficiency of the thyroid and the results in lowering blood pressure and ridding the patient of this surplus flesh justify the judicious use of this drug. The nitrites are of much value in reducing the blood pressure where immediate effect is desired. In angina pectoris amyl nitrite is called for. Its effect is so transitory that its use is of little value in cases calling for prolonged medication. Nitroglycerine is somewhat more lasting in effect. Sodium nitrite while slower in producing its therapeutic action is more lasting in this effect than the other members of this group. In cases of high blood pressure and resulting cerebral hemorrhage aconite and veratrin in divided doses are beneficial.

Summary of the Therapy of the Clinical Cases.

1st. Hypertension. Patients showing incipient arteriosclerosis should be placed on a strict definite diet, instructed in the nature of the disease and the habits of life to be followed in order to combat it. It is usually best to insist upon rest in bed for at least one week. These patients should be given

antitoxic treatment, consisting of elimination, intestinal antiseptics, diaphoresis and diuresis. They should also receive potassium or other iodides, or extract of thyroid.

When the blood pressure has been lowered, the intoxication relieved and the kidney activity returned to normal and the arterial spasm removed such patients after a reasonable time, may be considered as cured with assurance that so long as the rules laid down for their guidance are adhered to, they will have no recurrence. (This applies only to hypertension or the presclerotic stage).

2nd. Arteriosclerosis at present is an incurable disease, but one in which therapy properly applied accomplishes much in staying the progress of the disease and in removing many of the distressing symptoms. Elimination and the relief of painful symptoms, are the principal indications. This is accomplished by catharsis, the nitrites, alkalis, thyroid extract or potassium or other iodides as the individual cases demand.

The later stages merge into each other so closely as to form continuous progress toward broken compensation with dilatation of cardiac cavities, lowered arterial tension more or less visceral congestion, edema and are then to be treated principally by rest and elimination together with careful and judicious cardiac stimulation.

In conclusion, no structure of the body stands more abuse than the cardio vascular system. No structures of the body if protected and supported in time will show more surprising recuperation. We would therefore urge an early diagnosis, the prevention of the oncoming arteriosclerotic changes by the removal of the known causes and in the established cases treatment be early instituted in order to forestall the evil results.

Discussion.

E. B. Brooks, Pawnee City.—The paper is a very good one on a timely subject. I just wish to emphasize one or two points. First, that the suggestion of periodical physical examinations is a rational one, and is shown by the frequency with which we discover these cases of hypertension in connection with life insurance examinations. I have in mind three such cases ranging in age from 26 to 35 which have recently come to my notice. These people feel all right and it is difficult to impress upon them the necessity for treatment or changing their mode of life. They very readily slip out of our observation and I think just here we are prone to err in not going into the subject more fully, explaining the significance of hypertension, and the desirability of cor-

recting the condition at the time when it is most amenable to treatment.

A second point is the fallacy of trying to reduce every high blood pressure occurring in well developed cases of arteriosclerosis, say past the fifth decade of life. In many of these cases a moderately high blood pressure is essential to their well being and we err in attempting to reduce it beyond that point.

I. W. Haughey, Aurora.—Arteriosclerosis is a physiological process and begins soon after maturity. Every adult has it, but usually not to a demonstrable extent. Possibly we are slow in making a diagnosis, but it should be made before the condition progresses to an important pathological degree, so that measures which have been so admirably outlined in the paper can be adopted.

I would like to caution against making the mistake of telling the patient, in all cases, what the blood pressure is, since they have something additional to worry about. Most of these cases worry too much without the additional stimulus. I have a patient in mind whose blood pressure is 260, and if she knew of it she would hardly have time in the 24 hours to satisfy her worrying proclivities.

I would like to briefly report a case: A laborer, age 58, with arteries too hard to measure the blood pressure, as sufficient compression to arrest the flow of blood would injure the vessels. The pulse is not perceptible at the wrist; the radial feels like a knotted cord. They show well on the radiographic plate. This patient had a double cataract, and glycosuria. After the urine had been cleared of sugar by means of the Allen treatment the cataracts were removed with visual result of 20/80 in the right eye and 20/60 in the left. This is about as good as the retinal condition will permit. The retinal vessels show the characteristic sclerotic condition.

J. C. Waddell, Pawnee City.—Closing: I wish to say that we ought to detect these cases early, when they are hypertensions and before they become sclerosis. The public must be educated to periodic physical examinations. Every one should go, at least once a year, perhaps oftener, to his doctor for a complete physical examination, and if he gets value received he will return and will also feel that the money paid for the examination is well spent, even if we do not prescribe medicine. We must get the public to realize that other things, such as professional advice, are often of more value than medicines.

Icterus.*

A. Sachs, M. D., Omaha.

Icterus, like albuminuria, is a symptom and not a disease, therefore the scope of this paper is necessarily a wide one. However, I do not intend to discuss the individual causes, or even mention many of the diseases in which it is found.

In times past, icterus was divided into a hematogenous and a hepatogenous form, but it is now believed that a general icterus can-

*Read before Nebraska State Medical Association, Lincoln, May, 1917.

than its calcium or magnesium salts. In experimental obstructive jaundice in dogs, it has been found that the calcium content of the blood is not diminished, but that the calcium salts are fixed to the bile pigment. This fixation of the calcium salts protects the body against the toxic action of the bile pigment, however, it disturbs the coagulation time of the blood, and plays a part in slowing the pulse. (King, Bigelow and Pearce).

The bile salts are also toxic, and produce a depression of the central nervous system, with resulting coma and paralysis. They are toxic to cells of all sorts, causing hemolysis and destruction of tissue cells. Small amounts of bile salts stimulate the central ends of the vagus, larger amounts influence the heart itself, hence in icterus, we get a slowing of the pulse, often an irregularity and a lowered blood pressure. There is still much discussion as to whether the bile salts act on the vagus, on the intra cardiac ganglia or heart muscle itself. Weintraud demonstrated that in some cases of icterus, the administration of atropin, which paralyzes the vagus stops the bradycardia. Meltzer and Salant have shown that bile also contains a tetanizing agent which disappears in stagnating bile. The bile salts contain this tetanizing agent, but in less amount than the whole bile.

Bile salts exert a well marked hemolytic action on red blood cells outside the body, but it is plain that they are not present in the blood in sufficient amounts in jaundice to produce hemolysis. If hemolysis, due to this cause, occurred, there should be a marked anaemia and escape of blood pigment in the urine. The absence of anaemia and hemoglobinuria and the fact that bile salts are only found in the urine during the first few days of jaundice, shows that the production of bile salts by the liver cells is inhibited during jaundice.

King and others say that most of the effects of the bile on the heart is due to the bile pigments through their abstraction of the calcium.

The cytotoxic and hemolyzing effects of the bile may be due to the power of the bile salts to dissolve lipoids. Yellow vision or xanthopsia sometimes seen in jaundice, is explained by the retina and media becoming infiltrated with bilirubin so that the blue and violet rays are absorbed, and as a result, the patient suffers from blue blindness.

Pruritis, according to some men, is due to the irritation of the sensory nerves of the skin by the bile, especially the bile salts. Others say that the irritation of the skin is due to the pigment deposited in it.

Cholesterol is also increased in the blood, and this is supposed to bear some relationship to the xanthomas found in chronic icterus.

Spontaneous hemorrhages are frequently observed in icterus, and are due to the injury of the capillary endothelium by the bile salts, or to a slowing of the coagulation time, caused by the calcium salts being bound to the pigments. Frankel claims it is the trypsin present in menstrual blood which prevents its clotting, and whether or not a similar state exists in icteric blood, has never been tried. The coagulation time is markedly slowed according to Osler, instead of four minutes, it is prolonged to fifteen or twenty minutes. Some say it is due to a diminution of the fibrinogen in the blood, or a failure of the liver to stop poisons and bodies allied to peptones absorbed from the alimentary canal. The poisons would damage the blood vessels, while the peptone-like bodies would interfere with the coagulation of the blood. Mayo Robson suggested that the hemorrhagic tendency is of pancreatic origin, and that it is produced by the diminution of the lime salts in the blood, due to a profuse excretion of lime salts in the urine in pancreatitis.

The cytotoxic effect of the bile salts is shown by the albuminuria seen in icteric persons, and is the result of the renal lesion it produces. The bile is toxic to many bacteria, especially the pneumococcus, yet in icterus, the bactericidal power of the blood is lowered and infections are more prone to occur.

Croftan gives the physiologic effects of bile-acids as follows: 1, a powerful cytolytic action affecting blood cells and tissue cells; 2, a distinct cholagogue action; 3, in small doses (1-500) they aid coagulation; 4, in large doses (1,250) they retard coagulation; 5, slow heart action; 6, in small doses a vasoconstrictor, in large doses a vasodilator; 7, reduce sensory and motor irritability; 8, they act on the higher cerebral centers, causing coma, stupor, death.

It is hard to tell how much of the intoxication found in icterus is the result of the reabsorbed bile, how much may be caused by the other infection present, or the effect produced by a damaged liver not being able to

combat the poisons absorbed from the alimentary canal.

Urobilin is produced from the bile pigments by the action of the reducing bacteria in the intestine. Urobilinuria as a rule, only occurs when liver function is disturbed. However, the functional disturbance may be a slight one. In icterus, urobilinogen is always found in freshly voided urine, and this gives us our aldehyde reaction. A positive aldehyde reaction therefore, merely shows us a disturbance in the function of the liver, even though the disturbance be a slight one.

It is of more value however, to find a negative aldehyde with a general icterus, for this usually indicates a complete obstruction of the common duct, because it is absolutely necessary for the bilirubin or biliverdin to be acted upon by the bacteria of the intestine, to produce urobilinogen and urobilin, and if a complete obstruction of the common duct is present, no bile pigments can get into the intestine, and hence no pigments are present to be acted upon by the bacteria, therefore no urobilin or urobilinogen can be formed.

In obstructive icterus, the absence of bile in the intestine causes digestive disturbances. Constipation is present for bile is supposedly a laxative. Bile cannot be regarded as an antiseptic, for microorganisms grow freely in it, but flatulence is frequent when it is absent in the intestine. Failure of absorption of fat also favors intestinal putrefaction. The presence of the ingested fat that appears in the feces, increases from normal 7-11 per cent to 60-80 per cent.

A high grade of icterus is often present, however, without much evidence of intoxication, and this is seen most strikingly in cases of congenital hemolytic jaundice where icterus is more or less present all through life without serious effects. This important form of icterus has been greatly investigated in recent years, and for that reason, I wish to give a short resume of it.

Congenital hemolytic jaundice is also called hemolytic icterus, hemolytic jaundice with splenomegaly, etc. There are two forms of hemolytic icterus described, an acquired form and a congenital or familial type.

Minkowski, in 1900, was the first to describe this condition as a distinct disease. Appearing either as an acquired or familial condition, the first symptoms may develop either at birth, or during the early adult life.

The characteristic symptoms outside of its familial nature are chronic icterus, varying in intensity, an enlarged spleen, an anaemia varying in intensity, often a moderately enlarged liver, urobilin in the urine, but no bile except in some instances after a hemolytic crisis, which often characterizes the condition. The stools are well colored but no evidence of biliary intoxication is present, such as pruritis, bradycardia, etc. The red blood cells usually show a lowered resistance. However, this is by no means always present. The splenic enlargement may also be absent in some cases. (Benjamin, Sluker).

The patient as a rule, suffers very little inconvenience from the disease, and only for cosmetic purposes may seek relief from the doctor. Most patients however, have an anaemia, and for that reason have a lowered resistance, especially after a hemolytic crisis. The anaemia may be so great after one of these crisis, that the patient may be at least temporarily incapacitated, the symptoms being due to the anaemia and not the icterus.

In 1907, Chauffard discovered that the red cells underwent hemolysis in hypotonic salt solutions. Normally, hemolysis of the red cells begins at 0.42 per cent salt solution, and is complete at 0.3 per cent. In hemolytic jaundice it begins at 0.6 per cent, and is complete at 0.42 per cent, and this is what is known as fragility or lessened resistance of the red cells. Some claim that the red cells are smaller than normal, and also that a basophilic granulation can be seen at the periphery of some of the cells. Polychromatophilia is also present.

Urobilin in the stool is usually considered an index of blood destruction, and is greatly increased in hemolytic icterus. Eppinger believes the amount present in the normal stool is from 0.12 gm to 0.15 gm, while in hemolytic icterus it is increased from 2.25 to 3.8.

There are a number of diseases which bear a very close relationship to hemolytic icterus, and it would require more than the scope of this paper to take them up in detail. Therefore, I will merely mention the diseases:

Hemolytic icterus, pernicious anaemia, Hanots cirrhosis, and splenic anaemia.

Eppinger claims that pernicious anaemia and hemolytic jaundice are especially closely related, and in fact believes that the chief and possibly only difference between them is that in hemolytic icterus the bone marrow is

able to compensate for the increased destruction of blood, whereas in pernicious anaemia, it soon loses this power and hence our grave anaemia occurs.

Splenectomy has been tried in all of these allied conditions, and beneficial results have been reported. Splenectomy in hemolytic jaundice is only advisable if grave enough symptoms appear to justify this radical procedure.

However, it seems to afford relief in more cases of this nature than in the other diseases mentioned.

Chronic Intestinal Stasis, Clinically and Surgically.*

A. E. Watson, M. D., Grand Island.

The word "stasis," as applied to the conditions described, is a misnomer, as stasis means a stoppage; and, while intestinal stasis is described in a way as a stoppage, it is more a retardation or sluggishness of the intestinal contents. This may be due to at least two factors; first, an atony of the intestinal wall, due to a neurosis of some type, or, as described by some of our recent writers, and as taken up by this paper, stasis is due to membranous or adhesive bands, either congenital or acquired.

It seems to be a fact accepted by our most eminent clinicians, that the various membranous bands and folds are of congenital origin. Those who have had the advantages of work on the cadaver and in the dead-room, are of one accord in declaring these apparent pathological membranes to be congenital in origin.

Jackson, who described the membranous fold which bears his name, Treves, Reid, Lane and Jonasco, are among the first who have attached their names to as many different membranes or bands. Jackson described the membranous sheet or veil, which takes its origin from near attachments of the assembling colonic mesentery, and extends outward over the caput coli and ascending colon, even, in cases, to the lateral serosa, forming a veil. This veil is well supplied with circulation.

Treves describes a membrane which bears

his name, the bloodless fold of Treves. This is believed to be due to foetal adhesions between the parietal peritoneum and the caecum, during its descent in foetal life, dragging down a fold of posterior parietal peritoneum, which unmistakably acts as a suspensory ligament for the caecum.

Reid describes a band of serous membrane, evidently taking its origin from the mesentery of the terminal ileum, passes over the brim of the pelvis, and is attached to the genital gland below.

Lane describes a band very similar to that described by Reid, taking its origin from the terminal ileum, or close thereto, and pathologically giving rise to the well-known Lane kink.

Jonasco describes a membrane corresponding to that described by Reid. He also describes a parieto-colic membrane, enveloping the caecum and appendix in a hammock-like membrane.

These membranes are undoubtedly congenital, as they have been found in the earlier stages of foetal development. If congenital, then why consider them as pathological? They are, in my opinion, placed there for physiological purposes, but, like other tissues, may become pathological under certain conditions. Just what these are, it is impossible to say. Pericolitis, perityphlitis, and ileocolitis, could undoubtedly be causative of this condition, and from this inflammation it is not unreasonable to believe that a thickening and a contraction, as well as additional adhesions should take place and gradually take on pathological propensities demonstrated by certain signs, symptoms, and physical findings. After one has seen a few of these cases, and has had the opportunity of actually seeing the inside of the belly, these signs and physical findings prominently stand out in the light of the previous examination.

Why do so many patients, operated for chronic appendicitis, after a few months or years return, saying, "Doctor, I feel just as I did before my appendix was removed?" The reason is, that the appendix is not at fault, but the trouble was and is due to these

constricting bands. The operator, operating for a chronic appendix, had entered a two and one-half inch McBurney incision, had hooked out a small, white appendix, with possibly a hammock membrane overlying it, had closed the belly, and with a smile of satisfaction remarked, "It only took me fifteen minutes." The truth was, that in his haste, and working through a small incision, the real pathology had escaped him, and the patient went merrily on, minus his innocent appendix, but still retaining his former trouble. The surgeon was honest in his opinion that he had benefited his patient, proud of the small scar on the abdomen, and richer by one hundred dollars, but the patient comes back.

I do not wish to give the impression that I do not think chronic appendicitis exists, but I do not hold the appendix accountable for trouble, unless there exists a history of previous disturbance referable to the appendix, such as one or more acute attacks, either slight or pronounced. I do mean, that even after the work of our best clinicians, and their demonstration of the pathology of these membranes and bands, there are still too many operators who have either not acquainted themselves with the work done by other men, or are such poor anatomists that they do not recognize the conditions when present, and satisfy themselves with the removal of the appendix.

There is a class of operators who attempt to establish their reputations by the speed of the operation, and thereby fail to give the time necessary for exploration and correction.

As to diagnosis, clinically, I know of no symptom complex for these cases. The X-ray has proven of inestimable value, but the exploitation of this art I will leave to the "ray" man, and refer to the literature of recent past years.

Symptomatically, these patients give a history of constipation, gas, foul stools, appetite extremely good for a few days at a time, then poor. Thorough catharsis usually gives marked relief. The patient's mental condition is usually disturbed, or, as the patient says, "gets the blues easily," tongue is white in center, breath usually foul, the sclera is

muddy. Pain on right side, with marked tenderness on pressure over McBurney's point, without the marked rigidity of right rectus found in acute appendicitis. This pain and tenderness in my opinion is due to a gas-filled caecum. In more marked cases there is a bulging in right iliac fossa, due to distended caecum. The laboratory findings are not of positive diagnostic importance in my cases. Slight indicanuria practically always present, and all cases show a slight leucocytosis of from nine to twelve thousand. Patients complain of intervals of pain in right side, and a history of no previous disturbance well defined to the appendix. On these findings one can base the diagnosis with comparative certainty.

To my knowledge there is no definite specific treatment for this condition. There are a number of procedures recommended, but they are more or less applicable only to individual cases.

The separation of a Jackson's membrane, if it be in evidence, and looking no farther, will benefit the patient only in a small percentage of cases. It is but the work of a few seconds to sweep the finger around the caecum and ileo-caecal junction and determine their mobility, to determine the length of the bloodless fold of Treves; and if there be a ptosis of the caecum or ascending colon, and the caecum held rigid, thereby causing a torsion of slight degree.

Does the caecum extend over the brim of the pelvis? If so, can it be freely brought up? If easily brought up, is it too long? And if distended with gas, should it be reefed? Is it adherent too high up, with a short appendiceal mesentery? Is there a Lane kink? These are some of the things to keep in mind when exploring this region. The constancy of the bloodless fold of Treves has been of material aid, in determining these and in locating an obscure appendix, as entering the finger, hugging closely to the ileum, down into the ileac fossa, sweeping the finger upward, one can either feel the fingers pass over the adherent caecum, or will come against Treves' fold. Then the caecum would lie immediately above the fingers.

How best to deal with these membranes

is a great question. In my opinion, time is the most important factor. If one opens the belly, determined to release the bands and finish in thirty minutes, you can rest assured he is going to do a great deal more harm than good. Minimum trauma, and working at all times, so the raw surfaces can be covered, making clean cuts instead of tears, suturing over remaining tags of membranes, and carefully placing the omentum when retiring, will undoubtedly reach far toward a cure of these cases.

In dealing with the Jackson's membrane, which completely covers the colon, and is attached to the lateral and posterior parietal peritoneum, incise the membrane along the anterior, and parallel with the ascending colon, roll the gut inward, freeing it from the anterior and lateral attachment, until the posterior surface is reached; then, folding downward the lateral flap just dissected loose, obliterating the old bed, leaving it as a mesentery or support of the ascending colon. Cover the raw surface of bowel with sterile vaseline, cover all with omentum, put on a tight binder, and place patient on left side. The results of this, in two cases, have been excellent. Two others I have lost track of. In one case the caecum was over the brim of pelvis, and tied firmly down by omentum, which had been tucked around the caecum at a previous operation for a pus appendix. In this case we dissected the caecum free, sutured it with fine catgut to the serosa of ileum, and then sutured omentum to raw surface of caecum. The results in this case have been very gratifying.

Whether the free use of vaseline has been of any benefit I cannot say, but the thing which I think should be impressed most forcibly on the surgeon is deliberation. One eye on the abdomen, and the other on the clock, spells disaster for the patient. Handle the viscera of your patient as you would wish your own handled. Cut instead of tear. A quotation from Sir Berkley Moynahan, and published by Crile in his book on annociation, expresses my feelings in these cases:

"There are surgeons who operate upon the canine principle of savage attack, and the biting and tearing of tissue is terrible to witness. These are they

who operate with one eye upon the clock, and who judge the beauty of any procedure by the fewness of the minutes which it has taken to complete. There are other surgeons who believe in the light hand, who use the utmost gentleness, and who deal lovingly with every tissue that they touch. The scalpel is indeed an instrument of most precious use—in some hands a royal scepter; in others but a rude maddox. The perfect surgeon must have the heart of a lion and the hand of a lady; never the claws of a lion and the heart of a chick."

State Secretary's Report.

On Dec. 31, 1915, we had 970 members. On Dec. 31, 1916, we had 1054 members whose dues amounted to \$3,162.00. Three of that number paid dues arrear \$9.00 totaling \$3,171.00. This was received and paid to the Treasurer of our State Medical Association. Our membership is enlarging and interest in county and State Medical Association meetings is increasing. Our American Medical Directory fifth edition credits Nebraska with 1911 physicians. The Federal registrations under the Harrison law on March 31, 1917, totaled 1800. Of this number about 25 are osteopaths. Your secretary has been advised by an officer of the government, that certain physicians in Nebraska—more particularly those doing medical work in our state institutions, civic hospitals, and medical colleges—are not registered. These physicians in performing their salaried duties, or in private practice, may by a single prescription initiate unpleasant advertising. Your secretary in the execution of his duties becomes acquainted with conditions, favorable or otherwise, to efficiency in county and state co-operation. In our constitution and by-laws the fiscal year is identical with the calendar year. Elsewhere, provision is made extending the time for payment of dues three months after the calendar and fiscal year close. The practical effect is, a few pay in January and February, while the great majority who try to avoid delinquency pay late in March. Approximately 200 pay during the remaining nine months of the current year. The amount of clerical and correspondence work necessary for keeping our delinquent list, exceeds the time and expense in recording the non-delinquent members. The canceling, then re-entering on our mailing list, reporting to our national office, sending dues and receiving receipts from our state treasurer, is a pleasant but tedious penalty for carelessness in paying dues. If members

will promptly remit dues as you would pay life insurance premiums, your county secretaries would all be good natured, and show increasing efficiency in arranging society meetings. I suggest the date for your annual meeting, and a banquet, in the early fall. At that meeting elect officers and begin collecting dues for the coming year, asking that all be paid by Jan. 1st when your recently elected officers assume their official duties. Your selection of county secretaries for efficiency, is evidenced in the following figures:

Paid up by March 31st.	
In 1912	187
In 1913	311
In 1914	316
In 1915	678
In 1916	856
In 1917	885

The president, secretary and members of our council have given initiative and constructive support in our organization. The owning and controlling of an official journal by our State Association has in one year, greatly strengthened our fraternal unity of purpose, and acquainted us with other state medical associations. Our dues are insufficient for financing the necessary and rapidly increasing obligations imposed upon the several departments of our association work. Your honorable body last year appropriated \$300.00 for the office expenses of your state secretary. We spent it all and submit our expense account for your auditing committee to advise if it was wisely used. We believe a larger appropriation is necessary to growing demands of the office. Our president will doubtless bring this and other proper recommendations to your attention.

Joseph M. Aikin, Secretary.

REPORT OF TREASURER.

From January 1st, 1916, to Dec. 31st, 1916.	
Balance on hand Jan. 1st, 1916.....	\$ 251.90
Membership dues from 1054 members	2,108.00
Membership dues from 3 members, (1915)	6.00
All money received	\$2,365.90
Expense money Treasurer's Bal....	5.95
	\$2,371.85

From unknown source.....	2.00
	\$2,373.85
All money expended and duly accounted for by vouchers signed by President and Secretary, Nos. 263 to 276, both inclusive.....	
	\$2,253.40
Balance on hand.....	\$ 120.45
January 1st, 1917:	
Jan. 1st to May 5th, money received from 960 members.....	1,920.00
From 3 members in arrears.....	6.00
	\$2,046.45
Paid out to Journal Fund.....	500.00
Balance on hand May 5, 1917.....	\$1,546.45

Treasurer's Report on Medico-Legal Defense Fund.

From January 1st, 1916, to Dec. 31, 1916.	
Balance on hand Jan. 1, 1916.....	\$1,276.66
Membership dues from 1054 members	1,054.00
Membership dues arrears of 3 members (1915)	3.00
All money received.....	\$2,333.66
From expense apportionment returned by treasurer.....	39.42
	\$2,373.08
Paid out upon vouchers properly endorsed by president and secretary vouchers Nos. 18, 19 and 20.....	
	700.00
Balance on hand Jan. 1, 1917.....	\$1,673.08
Membership dues from Jan. 1st to May 5th, 960 members.....	960.00
3 members in arrears.....	3.00
	\$ 963.00
	\$2,636.08
Paid out by vouchers duly signed Nos. 21, 22, 23 and 24.....	
	697.89
Money on hand May 5th, 1917.....	\$1,938.19

Treasurer's Report on Journal Fund.	
Appropriated by the Association.....	\$1,250.00
Received from Advertising.....	2,264.90
Total received	\$3,514.90
Total paid out on vouchers duly signed by president and secretary	

of the Association, Nos. 1 to 57,
inclusive\$3,254.22

Balance on hand May 5th, 1917.....\$ 260.68

In submitting my treasurer's report I beg to draw the attention of the House to the following:

Many times your treasurer has urged that a stricter account be kept of the money you pay for the maintenance of this organization. You have passed resolution after resolution to bring about better observance of your by-laws, and yet more than half the county society officials fail to observe your requests. It seems to me that the time has come, when you should order your secretary to refuse to accept money drawn to his favor. The law specifically states that all dues must be sent by the order of the treasurer, to the office of the secretary, together with the names and addresses of those who have paid the same. This office shall send said money to the treasurer for safe keeping, who acknowledges their receipt with two copies of the same, one for the secretary and one for the county officer, who has sent the dues from his fellow members. This method should be strictly complied with, or entirely abandoned, as it is love's labor lost—really, much labor and expense for almost no returns. In this connection it is a pleasure to say that the present secretary and treasurer have seldom been more than pennies apart in their accounting, and no danger to your funds seems in sight from that source, but in the end, rules broken, will always punish the law breakers.

Another very serious matter is the non-payment of dues prior to the 31st of March of each year. From April 1st to the May meeting of the Association, sometimes almost two months elapse, before the county society and its members become reinstated. If thereafter any suit for damages, based on services rendered during such delinquency, are brought against any member, he will not be entitled to the services of the Medico-Legal defense committee and its attorney—another case of house burning the day after the policy expired and was not promptly renewed. This is a very serious thing and yet it happens every year, and this one proves no exception.

Permit me another suggestion. Many county societies do not seem to realize that the payment for at least five members in time, acts to keep the society in good standing, even if the individual members, who fail to contribute, fail to benefit, as far as indemnity in damage suits is concerned, but they are at once reinstated in their good standing as soon as they pay their dues to county and state organizations—not so, if county societies fail to keep up their membership dues, so in this case all suffer the consequences, often for some length of time.

Your treasurer would fail in his duties if he did not allude to the splendid record made this year by the Douglas-Sarpy County Medical Society, its efficient secretary added almost fifty new members to the already large society of last year. This shows that, after all, the secretary is the soul of the society.

Some mutterings of discontent are heard regarding the slow growth of the State Medical Association in the face of almost a thousand non-members of

good pedigree residing in the state. Your treasurer would gladly help to bring these physicians into the association if the opportunity were given him.

My office will return to the society \$15.94 of the \$25 set aside for the expenses of his office—and also \$81.50 of the \$200 given him for expenses as chairman of the Medico-Legal Defense committee; of the \$116.64 expended \$90 were used for expenses and for services of attorneys defending damage suits during the year, \$26.64 cover the expenses of this office.

An itemized statement in both funds accompanies this report to be examined by any member who feels himself interested.

Respectfully submitted,

A. J. Mansfelde, Treasurer.

Librarian's Report to January 1, 1917.

To the House of Delegates, Nebraska State Medical Society:

Gentlemen: Pursuant to a request of your Secretary, I am handing you herewith my report as Librarian for the period covered from our last meeting in May, 1916, to January 1, 1917.

During this time, we received 124 current magazines and 27 books, all of which are listed below and have been properly added to the library.

At the last session of this association, a sum of \$50.00 was set aside for the use of the librarian. It was decided that so long as our library was housed in conjunction with the library of the College of Medicine of our State University, and so long as our members were afforded the unlimited use of that library, that the membership should be encouraged to make use of the opportunity. With this end in view, negotiations were entered into between myself as librarian, and the librarian of the University Medical College whereby we could furnish bibliographies to any member for \$2.00, as an encouragement the association to pay half and the recipient of the bibliography to pay the other half. So far one member has availed himself of this opportunity, although many members have had books and magazines sent them for their perusal.

I want to impress upon the members most strongly, that our own library in conjunction with that of the State University makes a splendid working unit of over 15,000 volumes and as many more current periodicals. That in charge and at our service is the assistance of an expert medical librarian, all of

which affords to our membership an unusual opportunity for the developing of broad information on any given subject.

Inasmuch as my term of office does not expire for another year, I reiterate my willingness to assist any member in securing information at any time.

The official journal being now so thoroughly under the control of the state association, we are receiving many books and magazines that formerly were dissipated in other channels.

In conclusion, I would ask that the sum of money still remaining in the hands of the librarian be continued for service during the coming year. I will again urge the members to avail themselves of the splendid opportunity afforded by the joint libraries.

I will ask that when information is desired, your communication be sent to me direct and that all dealings with the library as a part of the Nebraska State Association be done through me as librarian.

Sincerely yours,
W. P. Wherry, Librarian.

Financial Statement of Librarian.

Receipts	\$50.00	
Expenses—		
Dr. Covey's Bibliography.....	\$1.00	
Stamps and misc.....	.75	
Hallie Wilson, librarian state uni- versity, express and postage.....	1.50	
	\$3.25	3.25
Balance	\$46.75	

Books sent to the Nebraska State Medical Journal for review and turned over to the library of the State Medical Association.

- Loyd Thompson—Syphilis.
- F. A. Faught—Blood Pressure from the Clinical Standpoint.
- Max Huehner—Disorders of the Sexual Function in the Male and Female.
- E. B. Downer—The Highway of Death.
- M. J. Rosenau—Preventive Medicine and Hygiene (1916 ed.)
- S. G. Grant—Constipation, Obstipation and Intestinal Stasis.
- I. J. Spear—Manual of Nervous Diseases.
- E. O. Jordon—Textbook of General Bacteriology.
- G. W. Crile—Man, an Adaptive Mechanism.
- Gradwohl & Blaivais—Newer Methods of Blood and Urine Chemistry.
- Frank Billings—Lane Medical Lecture—Focal Infections.
- W. E. Ashton—Gynecology for Practitioners and Students.

- E. E. Montgomery—Care of Patients Undergoing Gynecological and Abdominal Procedures Before, During and After Operation.
- Stelwagon—Diseases of the Skin.
- Flint—Physical Diagnosis.
- Sluss—Emergency Surgery.
- Bucholz—Therapeutic Exercise and Massage.
- Stimson—Fractures and Dislocations.
- Williams—Practical Urinalysis.
- McNeil—Clinical and Laboratory Technique.
- Medical Clinics of Chicago, Vol. 2, No. 3.
- Surgical Clinics of Chicago, Vol. 1, No. 1.
- Magazines sent to Nebraska State Medical Society 1916:
- Journal of the Arkansas Medical Society—Sept. Oct., Nov., Dec.
- California State Journal of Medicine—Oct., Nov., Dec.
- Colorado Medicine—July, Aug., Sept., Oct., Nov., Dec.
- Journal of the Florida Med. Association—July, Sept., Oct., Nov., Dec.
- Journal of the Indiana State Med., Assn.—July, Aug., Sept., Oct., Nov., Dec.
- Journal of the Med. Assn., of Georgia—Sept., Oct., Nov., Dec.
- Journal of the Iowa State Med. Soc.—July, Aug., Sept., Oct., Nov., Dec.
- Kentucky Med. Journal—Aug., Sept., Oct., Nov., Dec.
- Journal of the Maine Med. Assn.—Oct., Nov., Dec.
- Bulletin of the Med. & Chir. Faculty of Maryland—July, Aug., Sept., Oct., Nov., Dec.
- Journal of the Michigan State Med. Assn.—Sept., Oct., Nov., Dec.
- Journal of the Med. Soc. of New Jersey—Oct., Nov., Dec.
- New Mexico Med. Journal—July, Aug., Sept., Oct., Nov., Dec.
- Northwest Medicine—Aug., Oct., Nov.
- Ohio State Med. Journal—Aug., Sept., Oct., Nov., Dec.
- Journal of the Oklahoma State Med. Assn.—July, Aug., Sept., Oct., Nov., Dec.
- Pennsylvania Med. Journal—July, Aug., Sept., Oct., Nov.
- St. Paul Medical Journal—July, Aug., Sept., Oct., Nov.
- Journal of the Tenn. State Med. Assn.—Aug., Sept., Oct., Nov.
- Vermont Medicine—Sept., Oct., Nov., Dec.
- West Virginia Med. Journal—Aug., Nov., Dec.
- Wisconsin Medical Journal—Sept., Oct., Nov., Dec.
- N. Y. State Journal of Medicine—Aug., Sept., Oct., Nov., Dec.
- Texas State Journal of Medicine—July, Aug., Sept., Oct., Nov., Dec.
- Virginia Medical Semi-Monthly—Aug., Sept., Oct., Nov., Dec.
- Journal of the Missouri State Med. Assn.—July, Aug., Sept., Oct., Nov., Dec.

Report of the Committee on Scientific Work.

The program committee decided to continue the plan of holding the meeting in two sections, one devoted to medicine, eye, ear, nose and throat, the other to surgery, gynecology, obstetrics and roentgenology. This was modified to include two joint sessions; one on Wednesday afternoon, May 9, 1917, which would be opened by Governor Neville and the address of the president, Dr. W. F. Milroy, the other on Thursday afternoon, May 10, 1917, the last day of the meeting.

We had two big problems to solve. First to obtain the papers in time for the publishing of the titles in the March number of the Nebraska State Medical Journal and to obtain as many papers as possible from outside of Omaha and Lincoln. We set the last date for receiving papers, February 15, 1917, and on that date at our meeting in Omaha we found that we had more than enough material for our program.

We found that nineteen of our papers were written by Omaha men, twelve by Lincoln men and twenty-two by men from the state. About thirty-six per cent were written by Omaha men as against fifty-five per cent last year. About twenty-two per cent by Lincoln men as against twenty-one per cent last year and about forty-two per cent by men outside, as against twenty-four per cent last year.

We feel that consequently the two bugbears of the arranging the scientific work of the society has been properly cared for this year.

The sooner the Nebraska State Medical Society realizes that it is a large and powerful organization and that consequently the individual member must need at times waive his consequence, the more smoothly these details will be cared for. Also we, because of our size, must provide more funds for the detail work of our officers.

We hope that the work of this committee will prove satisfactory.

Joseph M. Aikin,
H. M. Hepperlen,
J. S. Welch,
Homer Davis,
B. W. Christie,
Committee.

Report of The Committee on Public Policy and Legislation and the Special Committee on Public Policy and Legislation.

To the President and Members of the House of Delegates:

The two committees, having a common interest in the major part of the medical legislation arising in the past year, have agreed to present one report. This being the year when the legislature was in session, your committees have been active.

The general policies of the association are settled in advance. Reform and progressive legislation are of such magnitude and importance that they must necessarily be carried over from year to year. To make this custom successful, the Nebraska State Medical Association has adopted the rule that all important legislation must be acted upon at the annual meetings. Vicious or emergency legislation, for obvious reasons, must be handled by the regular committee on Public Policy and Legislation. You endorsed, one year ago, the movement to create in Nebraska a new Department of Health according to the recommendations of Dr. Fox from the United States Public Health Service. You provided a special committee for this purpose. In pursuance to your mandates, we have tried to follow out the instructions.

This far-sighted program has enabled your committee to champion a bill which has established a Department of Health in Nebraska. It has also made it possible to control every single bit of legislation that in any way affected the medical profession of Nebraska. We are proud to report that the members of the Nebraska State Medical Association have stood loyally behind every measure.

Success had not been attributed alone to our own activities. The executive officers of the association, your councilors, and the county units have assisted whenever they have been called upon. We give especial credit to the Lancaster County Medical Society. Living in the capital city, by necessity much of the detail work falls upon their shoulders. Their committee, consisting of Drs. J. J. Hompes, K. S. J. Hohlen and B. F. Bailey, have loyally directed their efforts. Outside of the regular committees we acknowledge our indebtedness to the past presidents and to a number of members whom we called upon when they seemed to hold the key to a special situation.

We found the majority of the legislators listened with respect to the requests of the committees. The committees on Medical Societies of the house and senate sought the advice of your committees. Especially are we under obligation to Drs. Hoffmeister, White, Reneker and Doty and to Messrs. John Mattes and Leonard Flansburg who gave splendid assistance.

Your committee assisted the Nurses' State Association of Trained Nurses in preventing legislation which was aimed to lower their standards. They had a good deal of troublesome legislation along this line. Many of the bills were fathered if not introduced by doctors operating small hospitals; none, however, by members of our association.

We lent our aid to the Regents of the University of Nebraska, to secure a larger maintenance appropriation, money for equipment and for a new building. We did this because we felt that more adequate facilities and a more liberal budget would aid the university in upholding the standards of higher medical legislation.

The various faddists, cultists, and the irregular practitioners this year failed to make any very strong effort to gain legislation for their schools. We attribute this to our watchful waiting.

Our chief efforts were spent in the campaign to prepare and pass a bill in accordance with the Fox recommendations for the establishment of a new Department of Health.

This campaign began last year, when the endorsement of the association was obtained. Before the legislature met, every doctor in the state had opportunity to acquaint himself with the measures proposed. A copy of the Fox bill was sent to every member of the association; editorials appeared in the Nebraska State Medical Journal, the Lincoln State Journal, the Lincoln Daily Star, the Omaha Bee and the Omaha World-Herald. The county secretaries were communicated with. As many were visited as was possible. Various lay organizations over the state were visited and their endorsement obtained. The League of Nebraska Municipalities, the Women's Club, and many Commercial Clubs over the state were seen and their endorsement secured.

The opposition was small in numbers but energetic in action. It arose entirely from those outside our association who held a mod-

icum of authority and received a pittance in salary. A few may have been conscientious, but it was hoped they might be led to take the broader view of public policy and legislation. Your committee made every effort to meet other committees from various societies interested in public health. We found the various societies represented by the same group of men who insisted on their own views, and much of their action was unfair and discourteous. We were obliged to withdraw and continue our campaign alone, according to our instructions from your honorable body.

There are degrees of lobbying which must be distinguished. It is well known that many of the best reform measures that go through the legislature have been prepared by outside sources. They must have merit first, and then the strength behind the measures must be directed by men experienced in legislation. Our association has great potential strength, and we owe it to progressive medicine to use it in any legitimate manner to gain for humanity just and helpful laws. This should be called, not lobbying, but practical Christian politics.

The New Health Department of Nebraska.

Your committee encloses a brief discussion of the new Health Department, so that it may become a part of the society's records.

The Fox bill is now a law. It called for a reorganization of the public health administration in the state. Nebraska had been operating since territorial days under emergency measures. This law virtually means a new Health Department. Students of public health have long recognized the need. It required not only measures to surmount the constitutional difficulties, the formulation of broad and far-reaching laws, but leadership to bring together all the forces recognizing the public need.

The Nebraska State Medical Association contained in its organization the potential strength and the capacity for wise leadership to give unity to purpose and action. Two years ago the committee on Public Policy and Legislation laid down the principle that all constructive propositions for legislation must first come before the society for its endorsement. One year ago it presented a plan for a new health department which followed the recommendations of Dr. Fox, of the United States Public Health Service. This plan the association unanimously adopted. It instruct-

ed the regular committee on Public Policy and Legislation to work to this end. It created a special committee whose sole business was to obtain the necessary legislation. They have worked in unison in the education of the medical profession and the public at large. They obtained the endorsement of every civil and social body in the state whose objects are in the direction of public welfare. Practical politics, no less than the pursuit of theories, have been successfully followed up. The executive officers of the state, in the old administration as well as the new, joined in the effort to make the members of the last legislature see and grant the necessary laws.

The outcome has been a complete success. With a few minor exceptions, the bill as passed and now on the statutes to guide the administration of public health follows the recommendations of Dr. Fox and the exact wording of the bill as drawn by the Nebraska State Medical Association. As time goes on it will no doubt be found necessary to change some of the measures. But we have laid the foundations of a Department of Health which will stand for many years.

Our work is not yet completed. It is to our cooperation that the personnel of the department looks for assistance. We must insist that capable and efficient men be chosen for the administration of its functions; we must help to obtain such men. No appointments have as yet been announced. But it is hoped that the Board of Health will seek for the head of the department a man from out of the state who has had special training in public health administration. There are none in Nebraska who have spent the necessary time in preparation for this great field.

The burden of increasing the standards of medical education in the state will rest largely on the advisory board. They constitute the examining board, and virtually control licensure in Nebraska. All will admit the need of raising our standards. While all the states around us have raised their requirements for entrance into medical colleges, Nebraska still admits high school credentials as a sufficient preliminary requirement. This now can and must be altered.

E. W. Rowe,

For the Committee.

Report of Medico-Legal Defense Committee.

Gentlemen: The year 1916, as far as litigation is concerned, was a prolific one; and yet one which, we trust, is most satisfying in its results to the defendant doctors, and we sincerely believe, sufficiently demonstrates the wisdom which created the committee and provided the means for the assistance, which in most cases, is greatly needed, and which only experts in our profession can furnish. We cannot emphasize enough that this help must always be harmonious with the legal aspects of the case. Your committee has found a few attorneys over the state, who by their own understanding craved, as a necessary part of their efforts, such assistance; but more often it was necessary to persuade, and sometimes even force compliance with our needs. To properly adjust and make effective expert testimony, experts and lawyers must be prepared for the work prior to the trial of each case. It is here where your committee felt the need of legal advice, based on the medical aspect of the case. We are pleased to say that we have found in the person of Mr. Harlan A. Bryant a lawyer who combines love of his profession with an especial leaning to defense of damage cases against physicians. Your committee in all cases tries to furnish him the medical data needed to build up our case and then choice is made of such experts as best serve the respective issues. Your committee cannot say too much when it recounts the readiness to serve and the high standards assumed by our medical witnesses. It is this readiness to serve the physician involved in damage suits which has done more to create a spirit "de corps" in our membership than all the other means combined; a return which dollars are absolutely incapable of giving.

Two hundred dollars are annually set aside for current expenses of the chairman's office; some of this money has been employed to defray the expenses of the committee's attorney, but at no time has all of this appropriation been used, thus we turned back into the fund in 1914, \$122.61; in 1915, \$39.42; and in 1916, \$81.50.

On December 31, 1916, the fund contained \$1,670.08, and to this amount will be added about \$1,000.00 in 1917, making in all about \$2,700.00 at our command. The chairman's salary and office expenses require \$500.00; we have already paid four attorney's fees in

(Continued on page 365)

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The Method of Science.

When Huxley characterized science as organized common sense he did not, as far as the writer knows, indicate in what way the organization is brought about. This service has been performed for us by the late Professor Minot in one of his most brilliant addresses, "The Method of Science." In it he brings out in striking contrast the difference between impressions on the one hand, and, on the other, knowledge based on scientific accuracy. For example, if we were asked our opinion of Nebraska weather we might be inclined to say that, taken altogether, Nebraska has a fine climate. Our reply would be based on sundry odd recollections of sunny days and balmy breezes. But this opinion could not be considered as stating a scientific fact, no matter with how much conviction or vehemence it is expressed. It is an impression, or, the result of an averaging of impressions and can become a scientific fact only if borne out by the painstaking accumulation and recording over considerable periods of time, of such data as determine fine weather. Adequate evidence would then be available for a statement of scientific value. The averaging of impressions serves for the practical purposes of ordinary conversation but it is correspondingly unreliable.

All science originates in the personal experience of some man who has gained special

or unusual knowledge with respect to certain phenomena. Such knowledge is, at the present day, usually incorporated in an article and in due time makes its appearance in print. It is a record of original investigations and conclusions. In order to be quite proper it should through historical considerations and by references to a comprehensive bibliography, put the author's experience into relation with that of others. It should, in particular, contain all the data necessary for verification by others. In this way there arises and is made possible, a constant mutual testing of facts, mutual criticism and collation which converts personal knowledge into valid impersonal knowledge. As a final step in the production of science there follows a systematic coordination and condensation of the unwieldy mass of published records into usable and practical form. This then, is the method of science. To what extent it will be adopted and made effective in the conduct of the world's affairs in matters falling outside of the domain of science it is impossible to say. That the method of science is the method of modern medicine is obvious.

Medical Men and the Army.

The immediate need of medical men for the army comes as a definite call to every Nebraska physician. Every man who can do so should join the Medical Reserve Corps. The office of the Surgeon General of the army is devoting every energy to filling the Reserve Corps ranks and so far the indications are that volunteers are far short of the quota required. Every office with two or more men should endeavor to spare one, and those who remain behind should shoulder the burdens of those who go.

Every physician with a fairly lucrative practice has accumulated a number of definite and necessary fixed charges. His family must be cared for, his insurance paid; his investments supervised and his business, if it is to survive, must be cared for, in part at least, by an honorable practitioner who remains at home. These considerations are vital and no immediate crisis demands that any physician shall go unless ways and means are at hand to provide for these "fixed" charges. The members of a firm of physicians can with ease arrange the taking over of a member's obligations, but the problem is somewhat larger in the smaller communi-

ties of the state. We know that every physician is anxious to do his bit and is it too much to ask that those who remain at home shall arrange to conscientiously care for the business of a fellow practitioner on some basis which will insure the meeting of these fixed obligations?

Unless ways and means are speedily devised for filling the ranks of the Medical Reserve Corps the drafting of physicians for the army will in all probability be resorted to. If those who can, will make the sacrifice now, this contingency will not occur. The draft, of course, applies to all medical men between the ages of twenty-one and thirty-one without distinction, but this call does not contemplate medical service. It is the medical corps which requires men primarily. The medical officer is an absolutely essential part of army organization. Recent reports indicate that all the Reserve Officers called for the training camps did not respond. The time is here and now when definite decision and action is demanded.

County Societies and Medical Cooperation.

At the annual meeting of our state association the House of Delegates adopted a resolution providing for the care of the professional business of such members as shall be absent from their practice by reason of service in the army or navy during the present war. However, through an oversight no one was authorized to carry out the provisions of this resolution and no provision was made for meeting the necessary expense. Under these circumstances and in view of the fact that the principal part of the work of putting in effect the proposed plan devolves upon the county societies, we recommend that the county societies take the matter in hand immediately and that members who are interested communicate with the secretaries of their respective county societies.

W. F. Milroy, Pres.
J. M. Aikin, Sec.

Physical Training.

Among the many things which the state of war is teaching us in the omission of adequate physical training in our school system. In the public schools of our cities the teachers carry out daily a few minutes of wand exercises and calisthenics, with military drill

and seasonable athletics in the high schools. The small percentage of students who attend the universities are given gymnasium training and other sports. Although gymnasium work is compulsory in many universities and colleges, in others only those who wish take the work are so registered. The training in the sports is necessarily limited to the few. There is even a question whether the physical development gained in college sports is altogether helpful. "Athletic heart" is a common sequel of the intensive training necessary to excel. The present war is showing plainly that we need in our high school system a course of physical training which would be universal and which would develop the body symmetrically, making the muscles hard and the blood red. This would result in better brain work. It would seem that the old Greek idea of a sound mind in a sound body is, after all, the best ideal.

Report of Medico-Legal Defense Committee.
(Continued from page 363)

1917, on cases tried and settled satisfactory to defendant and committee in 1916, \$150.00, \$201.04, \$206.85 and \$140.00; this will take from the \$2,700.00 about \$1,200.00, leaving for future use, i. e., after this annual meeting, about \$1,500.00. Of this sum \$100.00 has been offered to an attorney in full settlement of his claims in a case and, as already stated by our attorney, four cases are now awaiting the slow processes of the courts. The danger which has always been present in a sudden demand on our resources, which could only be met by the annual session of the House of Delegates, or by an expensive extra session of the House. This calamity could, of course, be lessened greatly by an increase to two dollars a year of the annual dues, and if cheerfully given by the association, would greatly lessen the financial stress which the committee has always contended with, and would in the future, increase their usefulness and effectiveness.

However, your committee has been very economical and very fortunate in the outcome of most of its cases and thus, so far, have escaped financial trouble; and yet, we have in every case, gone to the limit of help required. There is no doubt that other states have done splendid work, but we are quite sure none can have done better than we in Nebraska, with our limited means. We believe that the time is here when most of the states will perform this work to the extent

of paying not only attorneys fees, but also judgments as some do already. Without in the slightest degree interfering with the best interests of the association, let us be careful to do nothing to put this splendid work in jeopardy.

Respectfully submitted,
J. S. Welch, Associate.
Joseph M. Aikin, Secretary.
A. S. v Mansfelde, Chairman.

Report of Medico-Legal Defense Committee
Of the Nebraska State Medical Association.
(By their Attorney)

The past year has been the most strenuous in the history of your committee, they having been called upon for aid by a greater number of their fellow practitioners than any previous year, and for the further reason that the cases seem to be more bitterly fought. The attorneys for the plaintiffs apparently have just awakened to the fact that they must know the medical side of their case as well as the legal, thus making it more difficult, in some cases, to come out of the fight with a clear cut victory for the defense.

Seventeen (17) different cases have come before us, involving in litigation twenty-three (23) members of our profession. They have arisen in all parts of the state, one of them being tried in the Federal Court at Lincoln, the trial taking up a greater part of five days. Four of our cases were settled out of court, three at the instance of the committee and one by the request of the defendant himself. While the practice of settling cases is not frequently indulged in by the committee, there have arisen in this year's work, cases where there is a plain liability on the part of the doctor, where concededly, both by the general attorney for your committee and separate counsel of the defendant, that the defendant is liable, then in those cases, we endeavor to effect a settlement.

We have won five (5) of these cases either by a dismissal of the action by the court or by the jury's verdict; four (4) of them are yet to be tried, either awaiting a term of court or the making up of the issues; one case called to the attention of the association at last year's meeting, is now in the supreme court on motion for rehearing.

That we may show you the tenacity with which some of the plaintiffs, and their attor-

neys, cling to "the last straw," we wish to report that in two of the cases the jury could not agree upon a verdict. This fact, in ordinary litigation usually ends the suit, but not so with plaintiffs who seek to bleed the doctors, as in both cases another trial was insisted upon and granted. We expect to establish beyond a question in both of the retrials that the actions are the usual blackmailing scheme of the dead-beat patient.

Several threatened suits have been called to our attention but as yet no developments worth mention have come to pass. This early notice, however, is a good practice, and we wish to advise any member entitled to our aid that our defense can be greatly strengthened by receiving prompt and full notice of the whole matter.

H. A. Bryant,
Attorney for Defense Committee.

Report of the Journal Committee on the Affairs of the Nebraska State Medical Journal.

Ten numbers of the Nebraska State Medical Journal have been published and the statement of the stewardship of the Journal committee follows:

INCOME.	
Cash from 1054 members at \$1.25 per year, for ten months.....	\$1097.92
Cash received from advertising in Journal for ten months.....	1807.39
Advertising for April, unpaid April 30, 1917	174.33
Total Income	\$3079.64

EXPENDITURES.	
Printing Journal, Postage, Extra Copies, Etc.....	\$1994.44
Editor's Expense, Clerical, Stationery, Cuts, Etc.....	315.53
Business Manager's Expense, Rent Clerical, Etc.....	235.50
Typewriter Expense	121.75
Stationery and Office Supplies.....	74.94
Press Clipping Bureau.....	21.00
Total Expenditures	\$2763.17
Balance on hand April 30, 1917.....	\$316.47

We believe that the members of the Association should know some of the details of the publishing the official Journal. Briefly, a small room, 468 Brandeis Building, Omaha, is rented for a business office at a rental of

ten dollars a month. A typewriter and roll-top desk have been installed. The Business Manager has an allowance of \$25.00 per month for clerical expense, only part of which has been used. The Editor has an allowance of \$25.00 monthly for stenographic and typewriter work and as most of this work is done out of business hours, and at the home of the party doing it, the committee purchased a typewriting machine for the purpose.

The contract price for publishing 1200 copies of the Journal of 48 pages for the current year is \$159.00 per issue. A number of issues consisted of 1400 copies and owing to the demands for advertising space, varying from time to time, pages have been added to the Journal.

Neither editor nor business manager have received any compensation and neither expect any remuneration for the current year. Provision must however be made to compensate the business manager in the future, if the Journal is to prosper, for it takes a good deal of the time and energy of a man to get the advertising contracts and to attend to the correspondence which is much more voluminous than one on the outside would imagine.

The cost of publishing the Journal for the ensuing year will probably be at least ten per cent higher than the present contract. The relation of editor, business manager and publisher with the Journal committee and with one another has been most cordial and satisfactory. The Journal committee has had five meetings in Omaha during the past year, at which were present, Editor, Business Manager and Publisher. The Editor, Business Manager and members of the committee have made every possible effort and many sacrifices to make the Journal what it is, and we hope you like it.

Constructive criticism is invited, and with your assistance it is hoped the infant Journal will attain standard proportions.

F. A. Long, Chairman.
W. O. Bridges,
B. F. Bailey.

Committee on Publication.

In the opinion of this committee its functions became nil, simultaneous with the creation of our State Association owned Journal. Our prescribed duties which we manfully left

undone, have been efficiently performed by our Journal committee. We recommend that it be made our Committee on Publication.

Joseph M. Aikin, Chairman.
I. H. Dillon,
Morris Nielsen.

Censor Committee.

Legislative enactment at our 1916 annual session brought changes in the field of action for your committee. The creation of a Journal committee clothed with equal authority for censorship virtually superseded our functions. That change was made clear when your chairman was compelled to act alone when confronted with censor duties demanding a decision. The spirit of the law was not supported by the written language. The Journal committee with magnanimous unanimity let their business manager decide on the acceptance or rejection of proposed local advertising. Our foreign advertising is all censored by the proper authority in our American Medical Association. We have refused some proposed advertising to the advantage of securing more acceptable patronage. The cunning words of sophistry would tarnish our reputation by enlisting our endorsement for selling goods not truthfully represented. In the judgment of your Censor committee our functions should become the duty of the Journal committee.

Joseph M. Aikin, Chairman.
W. P. Wherry.

Minority Report of A. S. Von Mansfelde,
Member of Censor Committee.

I did not sign that report because it appears to be utterly incongruous. Just imagine a number of men editing and publishing a journal and then becoming the censors of the publication. I do not think there is anything more absurd than that statement. Personally, I do not think the censor should be the censor committee as they are now—that is to say the secretary, the corresponding secretary and the treasurer. It should be a committee concurred in and appointed by this house. “Bust the people” who have the management of the Journal, should not be the censor committee because it would be incongruous with good faith and good judgment.

There is another incongruity in the committee’s report which I could not endorse, and that is, the prime duty of the committee to criticise or censor advertisements. It is the duty of the censor committee of this association to see that the contents of the Journal, the original articles, the editorials, everything that goes into that journal, be under

their guidance and under their censorship, and the advertising part is the very smallest part of it.

I am ready and willing that the business officer of the Journal should be the man to say what advertisement should go into the Journal and what should not and the present officer is absolutely competent to do such things. But as to himself and other members of that committee consoling by law their own creation, just let us drop that if you please, and these are the reasons why I could not sign that report and the making of this minority report.

Report of Committee on Health and Public Instruction of Nebraska State Medical Association. For Year 1916-1917.

Our committee has stuck more closely to the work expected of it this year. We have not been able to do much over the state, but have cooperated with the Lincoln Woman's Club and found some very enthusiastic and efficient helpers there.

Our first undertaking for the year was the "Health Exhibit" at the State Fair. We were offered space in the University building this year and took it, because we had a hard time and much wire pulling to get space from the Fair managers direct last year. However we did not have room enough and the exhibit attracted less attention here than in the old stand, so the move proved to be a bad one. We added some 18 new charts and cartoons and tried to change the exhibit in other ways, so that if the same visitors return year after year they will not find it an old story. We had many requests for pamphlets last year and this year the Metropolitan Life Insurance Co. gave us a liberal supply of striking yet reliable leaflets and pamphlets on health subjects.

One of our best dreams was made a reality, at least in small measure. The Better Babies contest at the State Fair was continued and the committee was able to help the new manager some in arranging for it. Then in addition, parents of frail and defective babies were asked to bring their children for a private conference Friday afternoon. Dr. McClanahan of Omaha, Nebraska's pioneer children's specialist—examined these little applicants and advised the parents what to do for them. The few helpers who saw this part of the work were enthusiastic about its possibilities for good and hoped it could be repeated and better advertised next year.

By the help of our Lancaster County Medical Society, we have been trying to educate the Lincoln people on cancer this year. Some of our Lincoln doctors wrote popular articles on the subject which were published in the Sunday papers. Then early in January Dr. Allen B. Kanavel of Chicago came and gave us a series of talks on the subjects. An afternoon meeting was held for women only, under the auspices of the Lincoln Woman's Club where he talked freely of cancer of the breast and uterus. A more technical talk to the doctors only, followed a six o'clock dinner at the Lincoln. Then the big popular lecture, for both men and women, came at eight o'clock. Both lay lectures were illustrated by lantern slides. All of the meetings were well attended, considering that this was Lincoln's first experience in public health lines.

The chairman of your committee made a mistake, as usual, and asked Dr. Kanavel to address his technical talk to the poorest members of the profession, not to the best, who tried to keep abreast of the times anyway by reading and post graduate study. We hoped that after this meeting, no doctor in Lincoln would blame all uterine hemorrhages on the menopause, without investigation, or advise his woman patients to "watch" a lump in the breast for a year or two and "see how it would turn out." As a matter of fact, only our best doctors attended the meeting, while the poor ones ignored our urgent invitations. The doctors of the South Platte county were also invited, and were well represented at the meeting.

Two other talks were given before the Health Department of the Woman's club during the year, by home doctors, one on contagions, and one on venereal diseases.

Our committee also worked with the Woman's Club for Baby Week, which we observed April 9 to 15. Besides our own State Association charts, the University of Nebraska Extension Department, the Children's Bureau at Washington, and the National Committee for the Prevention of Blindness loaned us valuable material. One of our best features was the four free afternoon clinics. One of these was for eye, ear, nose and throat defects, a second for dental troubles, a third for general poor nutrition, and a fourth for orthopedic defects and deformities. Some of our best Lincoln specialists gave their services for these consultations and very many parents took advantage of them. The Lincoln Auto Club's treat of a free ride for fifty loads of mothers and children, was also appreciated. Our movie films proved the most troublesome of any single feature, but all the same they were interesting, and now that we've learned about them by hard experience we mean to try them again.

Our committee also helped to plan and carry out afternoon and evening programs for the study of Child Welfare at Aurora, Neb., this spring. The program included talks on "Tonsils and Adenoids," and "Care of the Teeth." Five other towns over the state have asked to borrow our State Association charts for their Baby Week celebrations soon to be held. Of course we are glad to loan them, and to give any advice we can from our own experience.

One of our plans for this year's work failed entirely. We had hoped to persuade the Western Newspaper Union to print a short Health Article in each of its country papers each month during the year. But their managers informed us that their readers didn't care for such reading material as the two samples submitted. Since the Lincoln papers later printed both articles with thanks, we think perhaps it was not all the fault of the material.

Our committee has also helped a very little—mostly by applauding while somebody else did the work—in arranging for Dr. Bloodgood's lectures during this convention. At any rate we're very proud to have Dr. Bloodgood here, and very glad to have these public health meetings in connection with our State Association. When the A. M. A. met in San Francisco two years ago, it devoted one whole day of the three days' session to popular health lectures. Last year at Detroit it held a big health

parade, and in the A. M. A. Journal the president urged that wherever a big medical organization convened, it should do something in a public health way for the city where it met. We hope that our State Association will pattern after the national organization in this and make it a permanent custom to have some public health work in connection with each year's meeting.

Our committee would be very glad if the Association would grant us funds enough so that we could have Dr. Bloodgood's popular address printed in pamphlet form and distributed very widely over the state.

Daisy M. Hansen, Lincoln,
Rachel M. Cooper, Aurora,
Jno. M. Mayhew, Lincoln.

Committee.

Report of Committee on Care and Prevention of Contagious Diseases.

Your committee begs leave to report the following:

Through the courtesy of the chairman of the Tuberculosis Committee, Public Health Department of General Federation of Women's clubs, I learn that the sale of Red Cross Christmas seals netted \$3,943.00.

After 10% of this money was sent to the National Red Cross for their expenses and the local expenses were met, the balance will be sent out through the state to educate the people how best to combat tuberculosis.

There was sent out by the state department committee over 100,000 pamphlets and circulars during the last 12 months. They are sent out bi-monthly at the expense of \$35.00 per month.

I understand there is a Visiting Nurses Association at Fremont and one at Beatrice.

The bill known as the Fox Bill has become a law now we hope for better things.

I would suggest more rigid school inspectors were established and where they are not established I would advise a competent inspection formed throughout our cities and rural schools. When contagious diseases are found in the school room that room should be immediately dismissed for the remainder of the day. The articles used by the patient and room should be fumigated, also the halls, closets, toilets, etc., that the pupil has used. Our ordinary drinking fountains in many instances are faulty. I would advise a drinking fountain something on this plan: Instead of a small nipple or cup protuberance where the water flows, a larger spherical elevation at least three inches high and three inches in diameter. All theaters and auditoriums where children congregate frequently and all articles used promiscuously, should be fumigated or sterilized once a week at least and in times of an epidemic oftener.

I might mention all boards of health at the present time be more vigilant than ever to prevent disease. Many can remember our experience at the time of the Spanish-American war in the recruiting, transporting and disbanding troupes of war.

W. Berry, M. D.

Report of Committee on Social Insurance.

J. Lue Sutherland, M. D., Grand Island, Chairman.

About all that has been attempted in this country, so far, is the workman's compensation, and the employer's liability law, which we note was quite liberally amended by our last long-drawn-out state legislature. The intent of the amendments, it is stated, are to secure greater benefits to the working men and to establish a closer relationship between capital and labor.

Before submitting this apology for a report, I wish to introduce some exhibits in the shape of literature and correspondence, and make them a part of the report. The first is that part of the published proceedings of the House of Delegates of the A. M. A., 67th annual session, 1916, and marked "Exhibit A." These exhibits together with numerous monographs by various authors which have appeared from time to time within the last three or four years in publications both secular and medical, should give us a pretty good idea of both the nature and scope of the work under contemplation, and upon which it is expected that all medical associations will take some definite action at their regular sessions this year. Should any of you desire additional literature or more specific information upon the subject, requests addressed to John B. Andrews, secretary of the A. A. for L. L. and to Dr. I. M. Rubinow, secretary of the Council on Health and Public Instruction at 131 E 23rd St., New York City will be promptly and cheerfully honored.

I will now introduce exhibits B, C, D, E and F, each of which will explain itself. Exhibits B and D discuss the medical features of the scheme which in addition to its being both important and vital to its success should be of special interest to us and you will note we are urged to assist in developing this department of the plan, brief comment here may be in order. Quoting from Dr. Rubinow's letter: "The amount of medical aid provided, the relations between physicians rendering the service, the injured employee, his employer and the insurance company or fund and the standards of remuneration for such medical service; the great importance of this problem both from the point of view of the health of the community and that of the interest of the medical profession is obvious." As it occurs to your committee, but little need be said as to the benefits that will thus be secured to the insured; but from the standpoint of the physician, we fail to see but little, if any, benefit; on the contrary it would seem to mean an increased amount of work and responsibility without any increase in remuneration, and with a possible tendency toward indifferent or inferior service. Indeed in some respects it would be a near approach to "lodge practice;" and we believe we have a by-law that is not altogether friendly to "lodge practice," though tolerant in some instances. It is possible, however, that by a judicious and impartial apportionment of the work by well organized panels under competent supervision, together with the knowledge that remuneration is assured the above seeming obstacles may be overcome.

Exhibits C, E and F, while important and very material to a complete report, need occupy but little space just here and to save time we will pass to

the consideration of the subject as a whole rather than to any particular part of it in detail.

The fundamental principles of Social Insurance in their broadest concept are to benefit, protect and in various ways improve the physical, social, domestic and may we not add commercial well-being of the commonwealth in general, and of the wage earners and so-called laboring classes in particular. In other words to secure to each and all a living; which, under the present regime means simply existence to the great majority of the latter class, and in some instance not even that in a desirable form. And, as these conditions seem to be growing more precarious as year succeeds year, it would seem that from a humanitarian point of view that the time has come when something must be done to relieve these conditions; and that that something must be a little more humane, a little more effectual and a little less degrading and less stifling of self-respect than is the present system of dispensing cold charity. Indeed by the inauguration of the proposed system of Health Insurance may we not hope that in time we shall be able to do away with charity, as such, altogether? But as long as the "almighty dollar" and the schemes concocted and prosecuted in its acquisition is the dominating spirit of the world, however broad its scope, and however sincere and philanthropic its advocates and supporters, Social Insurance will fall far short of attaining the object for which it is intended. This may sound pessimistic or even revolutionary to all those who are heart and soul in favor of the movement; but a little farther on we shall quote a few facts and figures which we believe you will agree fully justifies the assertion.

Much of the literature upon the subject up to the present time is devoted to a discussion of the kind, or the manner in which the plan can be made the most effective, whether optional or compulsory, and as far as our reading has progressed, the latter has the best of the argument by an overwhelming majority. All men are not created equal, the utterance of Thomas Jefferson to the contrary notwithstanding, the evidence of which we see around us every day, and in no case is it more forcibly demonstrated as it is in the matter of the ability of different individuals not only to earn, but to maintain a desirable proportion between income and expenditure. To the great majority of the so-called laboring classes a savings account is an unknown quantity regardless of income, and of course to all such, compulsory insurance, however small the premium, without guardianship or official supervision of some kind would be an impossibility, and they are the ones who need it most.

But this is not all that may be said in this connection, for it would seem that even after all of the provisions had been complied with by the insured further safeguard will have to be provided in order that there be no disheartening and exhausting delay in paying to the beneficiaries that to which they are entitled, and especially to see to it that they are not made the victims of court procedures to collect the pittance due them. That this is not mere fancy I wish to quote a few figures from The Survey of March 27th, 1915, by John B. Andrews, whose name has already been mentioned in reference to the oper-

ation of The Workmen's Compensation Law in New Jersey, in which he says:

"Very few cases get to court, but when cases do come to court, examination of hundreds of cases of court records shows a degree of delay which weighs heavily upon the injured or their families when they are least able to bear it. Thus a widow and five children waited seventeen weeks for an award of \$1,500, and an injured hatter and his wife with five children of compensation age, waited 5 months for a court award, during which period the family was kept from starvation partly by the work of the wife in a cigar factory, and partly by help from fraternal societies.

"Of 53 awards for temporary disability which were made by the courts in one year, 15 were for disabilities that had already ceased. The average period between accidents and awards in fatal cases was over 27 weeks in 1913, and over 34 weeks in 1914. Only rarely does the petitioner go to court without a lawyer, and the defendant is almost invariably represented by an attorney. Among 432 court records for 1914 claimant and counsel fees ranging from \$5 to \$300 were mentioned as paid in 173 cases, making a total expenditure of \$10,213. The average petitioner had, therefore, to pay more than \$59.00 in lawyer's fees to recover that which was legally his under the law. Everything considered, it is estimated that the cost of a hearing equals from one-fifth to one-fourth of the award, and the entire cost of a year's litigation runs to between \$50,000 and \$60,000, much of it sheer waste which workmen's compensation laws were devised to eliminate. And even then not over 60% of the amounts payable under the New Jersey law is being paid."

Such is a verbatim quotation from such an authority as Mr. Andrews, Secretary of the A. A. for L. L. Is it any wonder that an occasional anarchist is found among the down-trodden, hunger pinched humanity of our metropolitan cities when at almost every session of the court they are brought face to face with such mis-administration of the law? And while we are about it may we not ask ourselves the question whether New Jersey is the only state that enjoys a monopoly in such miscarriages of right and justice? The above facts and figures should warn even the most optimistic advocates of social insurance, that however broad and philanthropic the principals upon which it is founded, and however strong and apparently vigorous its growth, it will require constant, unselfish and untiring supervision to protect it from parasites who are ever on the watch laying plans whereby the real purposes may be thwarted and its rightful awards misapplied or set at naught.

Opposed to compulsory insurance an article in The Survey of Feb. 24th of the present year under title of "Business Men on Health Insurance" is the following: "Downright opposition to any form of compulsory state insurance, in particular the Mill's Health Insurance Bill before the New York state legislature comes from the chamber of commerce of the state of New York." Then after voting to oppose not only the Mills bill but any similar bill upon the grounds that the state was already overburdened with taxation, etc., the chamber goes on to say: "An obligation rests on the community and the industries of the community to take care of the em-

ployees who are unable to work through sickness and who by reason of small wage have not been able to make provision against that contingency." But the resolution recites, "it is not clear from the facts in our possession that this or any similar plan will meet the obligation." The facts referred to are contained in a 90 page pamphlet, Social Insurance, with special reference to compulsory health insurance, written by John W. Crowell, executive officer of the chamber in which he says: "Now after the great powers of religion and morality have seemingly failed to accomplish their purpose, the principle of insurance is appealed to for solving the last of our great social problems, the problem of eliminating human illness and human poverty—twin ulcers of our civilization." And, "social insurance is one of the means by which the moral sense of the community expresses its demands in the effort not only to place the man above the dollar, but to have the dollar provided in reserve to save the man when it is most needed." In the same pamphlet is this utterance: "The poverty and exploitation of the weakest among the laboring forces, with resulting widespread sickness, do not exist in this country." Draw your own conclusions. The pamphlet describes the medical profession as a "state-protected monopoly" and "union" and pleads for delay in adopting the suggestions of doctors and others who have busied themselves in "concocting laws affecting business vitality, but which have not received serious attention by the business community." Further on the author quotes with relish a statement by the Massachusetts Merchants and Manufacturers association, that the minimum wage law of that state was enacted through the efforts of those "whose livelihood is largely derived from service in this or that social welfare organization, theorists on sociology, an occasional college professor, and finally a large proportion of well-to-do women whose sympathetic tendencies far outweigh their analytical grasp of the laws underlying the business and economic relations of mankind." Again we say, "take your choice."

Your committee is not sure whether it is expected to make a categorical recommendation at this time as to any part of the real work. In lieu of which we shall simply suggest that the association give itself more time in which to take the matter under closer and more thorough advisement. That at this session it can do but little more than to appoint committees and sub-committees sufficient in number and apportion the work among them, though a definite time may be set, say half a year hence, for a meeting of these committees. As your committee views it at the present time the success or failure of a movement so broad in scope, so complex and intricate in mechanism and dependent upon so many and various conditions and contingencies, and which has to do with all classes and kinds of people will depend upon the amount and quality of the energy expended by those whom it will least benefit.

Medical Association of the State of Nebraska

Next Annual Meeting at Omaha.

President, W. F. Milroy, Omaha.

President-elect, C. L. Mullins, Broken Bow.

Vice President, Lucien Stark, Hartington.

Vice President, A. W. Montgomery, Stella.
Secretary, Joseph M. Aikin, 468 Brandeis Bldg., Omaha.

Assistant Secretary—Roy A. Dodge, Omaha.

Librarian, Wm. P. Wherry, 705 Brandeis Theater Bldg., Omaha.

Treasurer—A. S. von Mansfelde, Ashland.

Medical Sections.

B. W. Christie, Chairman; First Nat'l. Bank Bldg., Omaha, Secretary.

Surgical Section.

C. A. Roeder, Omaha, Chairman; J. S. Welch, First Nat'l. Bank Bldg., Lincoln, Secretary.

STANDING COMMITTEES.

Committee on Scientific Work—Joseph M. Aikin, Chairman, Omaha.

Committee on Public Policy and Legislation—C. L. Mullins, Chairman, Broken Bow.

Committee on Journal and Publication—F. A. Long, Chairman, Madison.

Committee on Care and Prevention of Contagious Diseases—B. W. Christie, Chairman, Omaha.

Committee on Medico-Legal Defense—A. S. von Mansfelde, Chairman, Ashland.

Committee on Arrangements—B. W. Christie, Chairman, Omaha.

COUNCILORS.

First District—J. B. Potts, Omaha.

Second District—H. J. Lehnhoff, Lincoln.

Third District—I. H. Dillon, Auburn.

Fourth District—L. Stark, Hartington.

Fifth District—R. C. Byers, Nickerson.

Sixth District—E. O. Weber, Wahoo.

Seventh District—W. L. Curtis, Fairbury.

Eighth District—W. J. Douglas, Atkinson.

Ninth District—M. S. Moore, Gothenburg.

Tenth District—S. F. Sanders, Holdrege.

Eleventh District—H. E. Mantor, Sidney.

Twelfth District—A. J. Stewart, Mitchell.

Members of Component County Societies are members of the Nebraska State Medical Association. Physicians residing in counties where no County Society exists may, if agreeable to the members of an adjoining county society, and upon approval of the councilor of that district, join said adjoining county society. Annual dues \$4.00 due on or before December 31st of each year.

PRESIDENTS AND SECRETARIES OF COUNTY SOCIETIES.

Adams county—President, S. R. Hopkins, Hastings; secretary, C. R. Spicer, Hastings.

Boone county—President, Harvey Howard, Albion; secretary G. W. Sullivan, St. Edward.

Boyd county—President, none reported; secretary, R. C. Hawkins, Butte.

Buffalo county—President, L. M. Stearns, Kearney; secretary, C. K. Gibbons, Kearney.

Burt county—President, H. W. Benson, Oakland; secretary, S. A. Swenson, Oakland.

Butler county—President, none reported; secretary, H. H. Thompson, David City.

Cass county—President, F. P. Reed, Weeping Water; secretary, O. E. Liston, Elmwood.

Cedar county—President, C. C. Sackett, Laurel; secretary, L. Stark, Hartington.

Hitchcock county—President, A. B. Fellars, Paliade; secretary, E. M. Stewart, Imperial.

Cherry county—President, J. M. Tische, Wood Lake; secretary, A. N. Compton, Valentine.

Cheyenne county—President, H. E. Mantor, Sidney; secretary, F. W. Scott, Lodge Pole.

Clay county—President, James R. Bell, Fairfield; secretary, J. W. Archerd, Clay Center.

Cuming county—President H. S. Summers, West Point; secretary, Lincoln Riley, Wisner.

Custer county—President, George I. Sellon, Broken Bow; secretary, C. L. Mullins, Broken Bow.

Dawson county—President, J. M. Bozarth, Lexington; M. S. Moore, Gothenburg.

Dixon, Dakota and Thurston counties—President, E. J. Fleetwood, Wakefield; secretary, F. G. Dewey, Coleridge.

Dodge county—President, R. C. Byers, Nickerson; secretary, S. A. Preston, Fremont.

Douglas and Sarpy counties—President, J. H. Vance, Omaha; secretary, Roy A. Dodge, Omaha.

Fillmore county—President, J. Bixby, Geneva; secretary, V. V. Smrha, Milligan.

Franklin county—President, J. P. Fuse, Franklin; secretary, Ella P. Sumner, Bloomington.

Furnas county—President, F. H. McCabe, Holbrook; secretary, E. E. Cone, Oxford.

Gage county—President, D. G. Griffith, Beatrice; secretary, F. W. Buckley, Beatrice.

Hall county—President, Willis Redfield, Grand Island; secretary, Andrew J. Baker, Grand Island.

Hamilton county—President, E. A. Steenberg, Aurora; secretary, J. M. Woodard, Aurora.

Harlan county—President, W. C. Bartlett, Alma; secretary, S. M. Baker, Alma.

Holt county—President, E. T. Wilson, O'Neill; secretary, J. P. Gilligan, O'Neill.

Howard county—President, P. M. Pederson, Dannebrog; secretary, W. T. Raynor, Cushing.

Jefferson county—President, G. A. Heath, Fairbury; secretary, H. E. Potter, Fairbury.

Johnson county—President, J. M. Curtis, Tecumseh; secretary, Truman E. Fairall, Tecumseh.

Kearney county—President, none reported; secretary, W. H. Powell, Minden.

Knox county—President, D. D. Talcott, Crofton; secretary, G. E. Peters, Bloomfield.

Lancaster county—President F. B. Hollenbeck, Lincoln; secretary, J. J. Hompes, Lincoln.

Lincoln county—President, Vorhees Lucas, North Platte; secretary, T. J. Kerr, North Platte.

Madison county—President, A. E. Gadbois, Madison; secretary, E. L. Brush, Norfolk.

Merrick county—President, C. S. Minnich, Palmer; secretary, J. E. Benton, Central City.

Nance county—President, H. E. King, Belgrade; secretary, F. W. Johnson, Fullerton.

Nemaha county—President, B. F. Lorance, Auburn; secretary, E. M. Tyler, Auburn.

Nuckolls county—President, F. G. Saville, Ruskin; secretary, E. R. Hirsch, Superior.

Otoe county—President, none reported; secretary, W. Edmonds, Nebraska City.

Pawnee county—President, L. D. Harman, Table Rock; secretary, W. R. Boyer, Pawnee City.

Phelps county—President, J. L. Magill, Holdrege; secretary, P. A. Sundbury, Holdrege.

Pierce county—President, John Myer, Osmond; secretary, F. H. Nye, Pierce.

Platte county—President, C. H. Campbell, Columbus; secretary, A. G. Lueschen, Columbus.

Polk county—President, C. L. Lemar, Osceola; secretary, L. M. Shaw, Osceola.

Red Willow county—President, none reported; secretary, R. R. Reed, McCook.

Richardson county—President, R. W. Fouts, Dawson; secretary, S. F. Cowan, Falls City.

Rock, Brown and Keya Paha counties—President, G. O. Remy, Ainsworth; secretary, James C. Tucker, Long Pine.

Saline county—President, W. S. Warder, Friend; secretary, P. F. Dodson, Wilber.

Saunders county—President, E. W. McCaw, Colon; secretary, M. A. Quincy, Ashland.

Scottsbluff county—President, none reported; secretary, Clyde N. Moore, Scottsbluff.

Seward county—President, none reported; secretary, H. J. Wertman, Milford.

Sherman county—President, A. J. Kearns, Loup City; secretary, O. E. Longacre, Loup City.

Thayer county—President, C. Henry, Hebron; secretary, P. E. Milbourne, Davenport.

Valley county—President, M. M. Newbecker, Ord; secretary, C. J. Miller, Ord.

Washington county—President, R. J. Murdock, Blair; secretary, G. A. Langstaff, Blair.

Wayne county—President, none reported; secretary, C. T. Ingham, Wayne.

Webster county—President, A. L. Ambrose, Guide Rock; secretary, H. S. Reed, Guide Rock.

York county—President, George P. Shidler, York; secretary, B. A. Root, York.

Total number of members July 1, 1917, 1,108.

Medical Officers Corps.

The following Omaha physicians have received their commissions in the Officers Reserve Corps of the United States Army:

Name	Rank
*Akin, Henry L.....	Captain
Condon, A. P.	Captain
*De Lanney, E. L.....	First Lieutenant
*Ellis, Paul H.....	First Lieutenant
*Fricke, A. A.	First Lieutenant
Hall, Lynn T.....	First Lieutenant
Henry, E. C.....	Captain
Hollister, Robert	First Lieutenant
*Levy, Philip	U. S. Navy
Lord, John P.....	First Lieutenant
Pinto, A. S.	Captain
Pulver, J. E.....	First Lieutenant
*Shramek, Jos. M.....	First Lieutenant
Stokes, A. C.	Captain
*Moser, Allyn R.....	First Lieutenant
*Van Buren, F. A.....	First Lieutenant
Shook, Chas.	First Lieutenant
Anderson, Wm. N.....	First Lieutenant
Schrock, Robt. D.	First Lieutenant
*Johnson, A. A.....	First Lieutenant
*Eggers, H. E.....	First Lieutenant
Tamisea, John	First Lieutenant
*Active service.	

Necrology.

We are very sorry to hear of the recent death of J. L. Thomas, M. D., of Bassett, Neb., and extend our sincere sympathy.

We wish to extend our sincere sympathy to C. Watson, M. D., of Nebraska City, Neb., in the loss of his wife, who died April 22nd. All of the physicians of Nebraska City attended the funeral in a body.

The death of Dr. T. J. Nolan of Snyder, Nebraska, occurred recently at St. Joseph's Hospital, Omaha. Dr. Nolan's death was due to overwork and exposure after an operation for appendicitis. Dr. Nolan was a graduate of Creighton, 1903.

Dr. T. C. McCleary, for forty years a practicing physician at Exeter, Neb., died Thursday, April 26th, in his office of apoplexy. He was 68 years of age and leaves two children, Thomas, aged 18, and Ellen,

aged 12. Dr. McCleary was well known to the medical profession of Nebraska. The funeral was held Sunday at 2:30 p. m., with burial in the Exeter cemetery.

Dr. Henry T. Godfrey died April 17, 1917, at the home of Judge Charles Leslie, 5120 Cass street, Omaha.

Dr. Godfrey was the father of Mrs. Charlie Leslie and of Mrs. Leigh Leslie of that city. He was 76 years of age.

A son, Dr. Alfred C. Godfrey, now dead, was in the early nineties, associated in the practice of medicine in Omaha with the late Dr. B. F. Crummer, and was chief surgeon of the Presbyterian hospital and a member of the faculty of the Creighton medical college.

Berlin, March 1.—Dr. Emil von Behring, the world famous therapist and discoverer of diphtheria serum, died this morning at Murburg after a long illness.

Dr. von Behring was born in 1854 at Hansdorf, West Prussia. He commenced his professional life as an army surgeon. He was appointed professor of hygiene at the University of Halle in 1894 and moved to Strassburg university in the following year, where he became director of the Hygienic institute. In 1905 Dr. von Behring startled the medical world by announcing his conviction that he had discovered a cure for consumption, basing his conclusions on experiments made with animals.

Dr. J. Alfred Andrews, of Kearney, Neb., prominent in both medical and political circles in Nebraska for many years, died Saturday afternoon, April 28, 1917, at Bailey's sanitarium. He had been in failing health for five years, and came to the hospital last September.

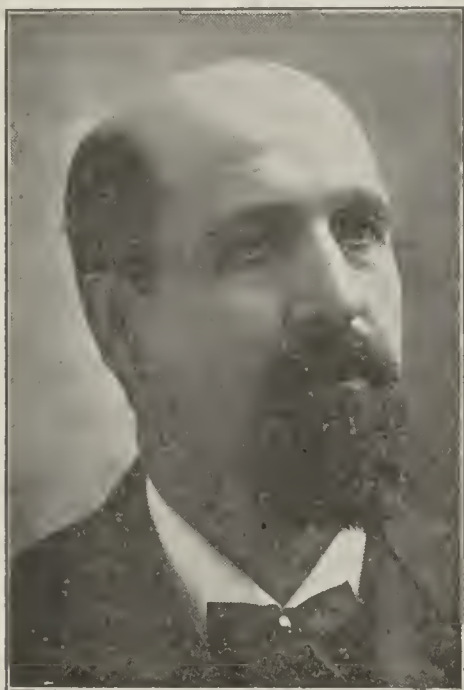
Dr. Andrews was a member of the 1901 state legislature. The funeral will be held at his home in Kearney Tuesday afternoon. The Masonic order, of several branches of which he was a member, will be in charge. Rev. Nathaniel McGiffen of Fremont, a life long friend, will officiate.

Dr. Andrews was born in Oskaloosa, Ia., 59 years ago on May 1. He was educated at Carson college, Indianola, Ia., and at Rush medical college. After a year and a half's work in Chicago, he took up the practice of medicine in Eustis, Neb., in 1894, and remained there until 1900, when he moved to Holdrege and established a hospital. He was married to Miss Lulah K. Trott of Kearney, the year he served in the legislature.

When his health failed five years ago, he sold his hospital and moved back to Eustis, and later to Kearney.

Three brothers survive him: W. E. Andrews of Hastings, Neb.; ex-congressman and auditor of the U. S. treasury; Wells R. Andrews, of New Sharon, Ia., and Oliver Andrews, of Clearfield, Ia.

Dr. J. J. Williams, pioneer physician of Wayne, died suddenly at 5 o'clock April 22, of heart failure while auto riding with Mrs. Williams and some lady friends. He was taken ill, death came almost immediately on reaching home. Dr. Williams was 67 years old, long a resident of Wayne and at one time a member of the legislature. His body will be buried in Wayne.



DR. J. J. WILLIAMS.

Resolution of Condolence.

Whereas, in the course of human events and in accordance with the plan of our Creator there has been removed from our ranks our esteemed brother physician, Dr. J. J. Williams, and

Whereas, he has been a member of our organization for many years during which time he has been held in the highest esteem and respect by the members of our society by reason of his high ethical standards, his medical skill, and his ever apparent brotherly love,

Therefore, Be It Resolved, That we do hereby extend to his bereaved family our heartfelt sympathy and make known to them that their loss is also ours;

And Be It Further Resolved, That a copy of these resolutions be sent to his widow, a copy sent to the Nebraska State Medical Journal for publication, and a copy spread upon the minutes of the organization.

Dr. E. B. Erskine,
Dr. M. H. Evans,
Dr. C. C. Sackett.

Committee for the Northeast Nebraska Medical Society.

Nebraska Notes.

The Republican Valley Medical Association met at Holdrege May 24, for a day's session.

Dr. Lawrence Pillsbury of Lincoln and Miss Grace Brody were married in Lincoln on June 2d.

C. L. LeMar, M. D., of Osceola, Neb., has left for the east where he will take a post-graduate course.

The marriage of Miss Minerva Fuller and Dr. T. C. Moyer of Lincoln took place in Omaha on May 14th.

Dr. H. Winnett Orr of Lincoln, who was called to London to do hospital work, has reached England in safety.

Dr. R. Allen Moser of Omaha left for Washington, D. C., to join a Red Cross Medical Unit for service in France.

E. F. Fuqua, M. D., of Benkleman, Neb., just returned from Chicago where he has been doing post-graduate work.

Fred Kraft, M. D., is assistant to J. V. Hinchman, M. D., who is physician at the Old Soldier's Home at Burkett, Neb.

The graduating exercises of the training school for nurses of the Grand Island General Hospital were held May 28th.

Herbert Cooper, M. D., of Craig, Neb., spent part of the month in an Omaha Hospital on account of a seriously infected arm.

Dr. Alfred Schalek attended the annual meeting of the American Dermatological Association held in Cincinnati, Ohio, May 24th.

C. E. Novak, M. D., of Humboldt, Neb., has accepted a position with the U. S. Government and will soon be located in Omaha.

Dr. W. S. Wiggins who has been practicing the past few months in University Place has returned to his former place of practice, Exeter, Neb.

The Kearney County Medical Society met May 8, 1917, at Axtell. Dr. Wells of Axtell was selected delegate to the Nebraska State Medical Society.

At a meeting of the Scotts Bluff County Medical Society held in Mitchell, Nebraska, April 23d, a schedule for increased fees was recommended.

B. H. Clark, M. D., of Ashland, Neb., was recently taken suddenly ill and was brought to the Wise Memorial Hospital in Omaha, where he was operated on.

Governor Neville has appointed Dr. C. O. Reed of Ewing, Dr. R. D. Bryson of Callaway and Dr. Earl Erskine of Wayne to the medical staff of the Nebraska Guard with the rank of First Lieutenants.

Dr. Walter G. Hiltner and wife of Nanking, China, are spending a few weeks in Nebraska. Dr. Hiltner has been attending special surgical clinics in Boston, Baltimore, New York City, Philadelphia and Cleveland for the past few months.

Dr. Albert Schneider of the University of California addressed the students of the Pharmaceutical Society of the University of Nebraska during pharmacy week. His message was that the standard of the future pharmacist must be raised.

Dr. P. H. Salter of Norfolk has been commissioned a major in the medical reserve corps. Dr. C. C. Johnson of Creighton has been given a lieutenant's commission in the medical reserve corps. Dr. F. H. Morrow and Dr. T. H. Crofoot of Columbus have been granted similar commissions.

A meeting of the Custer County Medical Society was held in May. Dr. H. J. Lenoff of Lincoln, the guest of honor, talked on "Symptomatology of Arteriosclerosis." There was a general discussion on the enlisting of medical men in the U. S. Army service and the best method of caring for practice of one called to service.

Dr. J. Frederick Langdon, A. M., 1904, M. D., 1906, who for the past four years has been assistant to Dr. M. J. Scott on the staff of St. James hospital at Butte, Montana, will return to Omaha soon to take up the practice of his profession. He will be accompanied by his mother, Mrs. M. Langdon, and sister, Miss Irene Langdon. Another sister, Mrs. J. A. McCreary, makes her home in Omaha.

Dr. Edwin F. Smith, pathologist in charge of the laboratory of plant pathology of the department of Agriculture says the whole medical problem of the origin and growth of tumors is receiving much light from plant pathology. Dr. Smith lecturing before the National Academy of Sciences explained the close relation between the plant disease—crown gall and cancer in animals. He claims both are of parasitic origin.

Dr. L. D. Bristol of Boston has been offered the post of State Health Officer of Nebraska. This selection was made by the State Board of Health. Dr. Bristol has been engaged in board of health work in New York and Boston and is now taking a post-graduate course in this branch in Harvard Medical College. The Fox Bill passed by the last legislature makes the chief health officer the real head of the board and its various departments. The salary to be paid is \$3,000 a year.

The first American uniforms to appear in the trenches and on the European battlefields bear the wand, the spread wings and the serpent, of the Medical Corps' insignia. The physicians and surgeons of this country are going abroad at the rate of 200 a month to serve with British troops at the front until the earliest contingents of American soldiers arrive in France. This was decided at a conference in Washington with the Balfour and Viviani Commissions. It was over a year ago that the medical profession of the country began to prepare for war. Provision has been made against the impairment of medical service in home communities and against the danger of wrecking the faculties of our medical schools. Looking still further, provision has been made for protecting the civil population against the spread of disease by returning troops by refugees.

SOCIETY NOTES.

Northeast Nebraska Society.

The regular semi-annual meeting of the Northeast Nebraska Medical Society was held at Emerson, Neb., April 30, 1917. Due to the unfavorable weather conditions there were only twelve members present. Visiting were Drs. Patton, McClanahan, Aikin and Jones of Omaha and Drs. Jepson, Nervig, Doherty and Dale of Sioux City.

Dr. John Buis of Pender read a very interesting paper on the subject of Anterior Poliomyelitis. The discussion was lead by Dr. H. M. McClanahan of Omaha and was discussed by Drs. Jones, Stark, Sackett, Francis, Doherty, Aikin and Jepson. Dr. Sackett of Laurel followed with a comprehensive review of the subject of Pyelitis which was discussed by Drs. Stark and Jones.

At the business meeting the following officers were elected to serve during the ensuing year: Dr. John Buis of Pender, president; Dr. Hansen of Emerson, vice president, and Dr. Dewey of Coleridge, secretary-treasurer.

Dr. Sackett extended an invitation to the association to meet at Laurel next fall which was accepted.

On motion a committee consisting of Drs. Erskine, Sackett and Evans were appointed to draft resolutions of condolence expressing our grief and sympathy concerning the death of our fellow member, Dr. J. J. Williams of Wayne.

Following the regular business meeting we enjoyed a double treat consisting of an address on "Medical Preparedness," by Dr. Wm. Jepson and a delicious banquet served by the ladies of the English Lutheran Church.

The meeting closed in due form.

E. B. Erskine, Sec'y. Pro Tem.

BOOK REVIEWS.

Emergency Surgery, Fourth Edition, by John W. Sluss, A. M., M. D., Associate Professor of Surgery, Indiana University School of Medicine; Ex-Superintendent Indianapolis City Hospital; Surgeon to the Indianapolis City Hospital. With 685 Illustrations, XIX-848 pages, 12mo. Flexible Leather, Gilt Edges, Round Corners, \$4.00.

We have before us the fourth edition of Dr. John W. Sluss' "Manual of Surgery". Dr. Sluss entitles his book "Emergency Surgery" and the greater portion of the book treats the emergency conditions of surgery. Practically every field of surgery is covered by this author and one feels that the title

"Manual of Surgery" would fit the text better. The fourth edition differs from the other editions in that a large number of pages are given to the treatment of conditions produced in war and as the author says in his preface, "The text pertaining to the surgery of war, has been carefully revised and brought up to the moment".

The chapter on "Wound Infections" includes all the new points that have been developed on the European battlefield.

The author recommends very highly, the use of hypochlorous acid in Dakin's solution, for the treatment of infected wounds.

The reviewer is particularly attracted to the chapter on gun shot wounds, which is complete, detailed and attractively arranged.

The illustrations are excellent and each edition contains an increased number of original illustrations, although as yet, many are taken from other works. The orderly arrangement of the text is attractive and the author exhibits a wide knowledge of emergency conditions.

The soft binding makes the book easily portable, it can be carried in the physician's grip or pocket without any damage. It is an attractive volume and one every surgeon or physician should have on his working table.

A. C. S.

Infantile Convulsions and Allied Conditions.*

Newell Jones, M. D., Omaha.

It is not the intention of this paper to fully cover this subject; but, in as far as possible, give a few practical observations. To get to the practical side, it may be necessary to take up, more or less, some of the more complex chemical problems, but on the whole, it is the intention to stay away from these as far as possible.

We do not have the feeling of the doctor about whom the story is told, who on seeing a child whose condition he was not sure of, started to give some medicine, when the mother asked: "What is the trouble and what are you giving the medicine for?" The venerable M. D. replied: "I don't know what is the trouble, but I am giving the baby something to make it have fits 'cause I'm hell on fits." Most times we feel that the fits are harder on us than we are on them.

There is no need of considering the diagnosis of the ordinary convulsion but let us for a moment mention the allied conditions which we want to consider with convulsions. First and most frequently seen, is Spasmodic Croup; second, Tetany; third, Laryngeal Spasm; fourth, Holding Breath Spells which are not intentional on the part of the child; fifth, Periodic or Recurrent Spasmodic Cough. Let us just say right here, however, that we are not considering convulsions due to Epilepsy, Brain Tumor, Hydrocephalus, etc., but only the true infantile convulsion or rather the type of convulsion which can be considered as curable.

Now, what is the relation between convulsions and these other conditions. Our posi-

tion is this: That a convulsion is a spasmodic condition affecting more or less completely, all the striated muscles; while the other conditions are quite a local manifestation of the same phenomenon.

To get any of these conditions we must have a susceptible child, or to put it differently if you have been more accustomed to think in the terms of heredity, these conditions are familial affairs. Considering a family of five or six children, if we see any of them with convulsions, croup or any of the other conditions is it not true that we get a similar history regarding several of the others if we take the plains to inquire carefully? Usually, father or mother had the same conditions when an infant, and sometimes it is even possible to trace it back as far as a great grandparent. Oh! no. Please do not misunderstand me and think I am placing the whole blame on heredity, for in nearly every case, it is linked up with other exciting factors.

Now, without further consideration of this phase, let us take up the other factors that are necessary; and let us do this on a basis of case histories.

Baby H.—18 months of age. Healthy at birth. Breast fed for about six months when mother's milk became somewhat scanty, and was put on bottle of a straight milk dilution with the addition of sugar. Apparently did fine except for slight constipation and a tendency to eczema. At about one year of age, cereals, eggs and bacon were added to the diet without any noticeable trouble except an occasional very offensive stool. Gain in weight was good. Child seemed well except slightly pale and at times very irritable. Without apparent provocation, one morning child had quite a severe convulsion. Examination: T. 103. Pulse 120. R. 24. Reflex, very active. Chvostek's sign present. The child was found to be somewhat rachitic. Fontanel still open, head slightly square, rosary, Harrison's sulcus and pot belly. Had sixteen teeth and no more erupting. No great amount of undigested food from enema and castor oil. No ear or throat trouble. No phimosis, but pus found in urine. There can be no question but that the immediate cause of the convulsion is the pyelitis; but should a pyelitis with a temperature of only 103 cause a convulsion in a normal child? Let us consider the findings first and the history second. Our evidence of rickets shows conclusively a lack of calcium metabolism and the presence of over active reflexes and a Chvostek's sign shows an over-excitability of the nervous system. This over excitability of the nervous system, as we know, is always connected with a disproportion of the calcium sodium ratio. We call it the calcium sodium ratio, but in reality it is the calcium and magnesium salts on the one side and the sodium and potassium salts on the other side of our ratio. Should we have a marked excess of sodium or potassium salts, even with a

*Read before Nebraska State Medical Association, Lincoln, May, 1917.

normal amount of calcium and magnesium, we will get a hyper-excitability of the nervous system; or should we get an actual decrease of the calcium and magnesium, the same thing will happen. An increased amount of the calcium and magnesium produces a condition of lessened nervous excitability and requires a greater amount of electric current to produce a contraction. This child, after the immediate treatment for the convulsions, was put on good sized doses of potassium citrate with a marked increase in the amount of urine and a drop in temperature; but an increasing Chvostek and a very irritable nervous condition without having any more distinct convulsions. But the child was at that point where ordinarily a draught or a sudden slam of a door might produce a genuine convulsive seizure. Fearing this, the alkalies were stopped and the child was given urotropin and calcium-lactate both in good sized doses. In less than 48 hours the extreme nervous condition had abated and in 4 days the Chvostek's sign had disappeared. To be sure that we were not dealing with an accident, we again switched the child onto the potassium-citrate, 90 Gr. in 24 hours, and in less than 48 hours again had our nervous symptoms which again disappeared on stopping the alkali. The changes from alkali to urotropin and back, seemed to have materially benefited the pyelitis and the child was put on cod-liver oil and vegetable diet with practically a complete cure of the rickets and spasmophilic condition.

Case Two—E. S., age two years. Cousin of Case One. Normal at birth. Weighed 7 lbs. Breast-fed for only a short time. Was put on a mixture of fat, 3 to 3½%; protein, 2%; carbo-hydrate 6%. Things went along pretty smoothly on this for a while and the child gained rapidly in weight but developed a very persistent facial eczema which resisted all external treatment for three months. By this time also the gain in weight had stopped. A reduction of the fats to a little less than 2% and the addition of some starchy foods very quickly dissipated the eczema and there was no more trouble, except, at one time the mother thought the baby wasn't getting enough to eat and again added an excess of fat to the food—when the symptoms quickly returned but disappeared again on removing the excess of cream from the diet. This child had no farther trouble until her second winter when she started having croup. The spells would come on without the least indication of her having a cold or any bronchitis and were extremely persistent. At one time it was necessary to give an emetic by hypo to get relief. Within a few months previous to these attacks, this girl had developed a marked dislike for vegetables and an extreme desire for milk, so that she had a diet composed almost exclusively of milk, consuming an average of three pints a day. We were a little careless a first in going into the diet and were not making much headway with our croup; these spells were recurring every few days, until one day we got a very decided Chvostek and a decidedly active kick to the reflexes when we went into the matter a little more carefully. On the reduction of the milk to 24 ounces of 2% milk, the girl decided that she wanted other things to eat, and took more vegetables. This change of diet with the addition of 3 drams of cod-liver oil a day, put us through the winter with only one more attack of croup which was extremely mild.

Case Three—Baby P. Age eight months. I was

asked to see this child in consultation on account of repeated convulsions. In the last twenty-four hours the child had had five major convulsions. About two weeks previous to this attack, he had had a couple of convulsions a few hours apart, but had not been paid much attention to either by the family or the attending physician. In going into the history, we found that for the last eight weeks the child had had choking spells which the mother connected with the feeding or thought it was due to some slight inability to swallow; but on closer questioning, we saw that these spells would come on at times when he was not eating or had nothing in his mouth. The child had never been fed on the breast; and, in fact, had had a very unsatisfactory feeding history all the way through. At the present time he weighed between 12 and 14 lbs., and in the twenty-four hours, was getting 24 oz. of milk and 2 oz. of milk-sugar and practically nothing else. Examination: T. 103. Pulse, 120. R., 35. Throat, red. Some roughness over the bronchi. No consolidation or rales in the chest. Reflexes extremely active. No Chvostek. Anterior fontanel, small, level. Cranio-tabes very marked. Abdomen, slightly distended but not rigid. The child was given a thorough elimination, two large doses of chloral hydrate and a mixture of calcium-bromide 5 Gr. and calcium-lactate 10 Gr. every three hours for the next four or five days. The temperature was normal in two days. The child had no more convulsions. The amount of milk was cut down very materially and he was started on vegetable soup and cereals with two drams of cod-liver oil in the twenty-four hours, and has had no recurrence at the present time of the choking spells or convulsions. The child was seen about six weeks ago. In this case, we have a localized forerunner of a general convulsion, which, if it had been recognized and the proper treatment instituted, we are satisfied the general convulsions could have been averted. In this case, we had history of both parents having convulsions, also the mother and two aunts on the mother's side, and one uncle on the father's side as well.

Case Four—Baby S. 16 months old. Came to see us on account of what his mother called temper fits. Whenever the baby would fall or bump himself or had some sudden excitement, he would hold his breath, sometimes even to the point of getting blue in the face. The mother had been in the habit of shaking him, throwing cold water in his face and various other things to get him to breathe. When asked why she did this the mother said she was afraid he would go into a convulsion. While making the examination, the boy had one of these spells. It was the most typical first stage of a convulsion I ever saw, except that the tonic contractions were limited practically to the chest and face. After about a minute he was normal. This had been going on at intervals for between three and four months. Some days he would have as high as fifteen or twenty of these spells, and other days only one or two. The spells had not seemed, in any way, to have undermined his general health. He was a large boy for his age; weighed about thirty pounds. Color was good and he was extremely active. He had walked since he was eleven months old and had twelve teeth. Fontanel was almost closed. No rachitic indications of any kind. The mother was sure nothing in his diet could have anything to do with

his condition; as they lived on a farm and he was given almost nothing except plenty of fresh milk. In this case, plenty meant about two quarts a day. Strange to say, this amount of milk had apparently not upset his digestive apparatus in any way. The mother had had convulsions until she was nearly eight years old, and the father had occasional attacks of asthma. The quantity of milk, in this case, was immediately reduced to one and a half pints; and a very general diet, except meat and eggs, was given. For a time, the child was given small doses of bromide and calcium-lactate, as well as cod-liver oil. In the next three months he had four spells and in the subsequent three months one spell. Some six months later, we were talking to the family physician and the child had had no more trouble.

Case Five—Baby R. Colored. 19 months. Had been breast-fed until fifteen months of age. Had had a couple of convulsions while cutting teeth at about ten months. About three weeks before seen, the mother had noticed that the baby did not use one hand well, and in a few days both hands were affected. About a week before I saw him, the child became unable to walk and began having some facial twitchings but did not have a general convulsion. The child, since being taken off the breast, had been fed on condensed milk and malted milk, principally; but was also given meat whenever the family had it, which they said was three or four times a week. The child was plump, apparently well nourished but very rachitic. The temperature was normal. The hands were held in an exaggerated obstetrical position. The ankles were extended and the toes flexed, particularly the smaller toes, with a fair degree of inversion of the foot. The reflexes were extremely brisk. Chvostek's sign was the most marked we have ever seen. Constriction for a minute around the upper part of arm started a decided twitching in the arm as well as increasing the obstetrical position. It required about forty grains of calcium-bromide a day for the first week to keep this child relaxed. After that time, for the next three or four weeks the child went along without any sedative; but by that time the mother had become tired of the somewhat strict dietary orders and the baby started having more trouble. When we refused to treat the case farther unless the mother would follow our dietary orders, we lost trace of the case entirely.

Case Six—Margaret T. Age seven years. Had been a perfectly healthy child up until her fifth winter when, on getting her feet wet in the fall, she developed a very persistent cough which lasted practically all winter. She had been better during the summer, but her sixth winter was practically a repetition of the previous winter, except that at times she was nearly free from cough and at other times her difficulty in breathing was very marked. The following summer her trouble did not entirely disappear. She was seen in the fall when her cough and difficult breathing had again become exaggerated. She was a well developed, well nourished child, but extremely irritable as also was her mother. The mucus membrane of her nose was red and the left inferior turbinate was somewhat enlarged. There was a little bit of adenoid tissue and both tonsils were somewhat ragged. Her heart action was nor-

mal, but her respiration seemed somewhat labored. A few asthmatic whistles could be heard over the chest; besides these, there were a few moist rales over the larger bronchi. Her appetite was capricious; one day eating very well and the next day practically nothing. She was very fond of candy and particularly so of chocolates. Her mother, fearing she was not getting enough to eat, was buying an extra half pint of cream each day and giving to the girl. Besides this, she drank at least three glasses of milk a day and ate an excessive amount of butter. Meat was eaten in far too large quantities. The girl was extremely nervous, jumped at every little provocation, could sit still only a few minutes at a time, and was very cross and irritable. Reflexes were brisk. Chvostek's and Trousseau's sign were both present and well marked. Electric reaction required only about 3 Mil. to get a decided contraction. It was decided to entirely disregard the condition in the nose and throat for the present at least. Milk, meat and eggs for a short time were entirely eliminated from the diet. In about ten days, a pint of skimmed milk was allowed in the twenty-four hours. Butter was limited to one small patty per meal. Chocolate candy was entirely restricted, but pure sugar stick candy in moderate amounts was allowed. For experimental reasons, no medication was given for a time. By the end of the first ten days the girl slept all night without a coughing spell; something she had not done for two years. The asthmatic whistles were much decreased as also were the bronchial rales. The electric irritability, however, was still present but not to as marked a degree. At this stage, maltine with cod-liver oil was given in tablespoonful doses four times a day. The girl was so well that she was not seen for three months when she came in with a recurrence of her cough and her mother said her medicine was not doing her any good at this time. A little careful questioning disclosed the fact that the mother had become sorry for the child on account of the limited diet or as the mother expressed it, "Starvation Diet," and had been sneaking in extra amounts of butter and cream and from one to two cakes of Hershey's Milk Chocolate a day. A return to the ordered diet soon made condition much better, and as the mother had learned her lesson, the girl has had very little trouble the past two winters. At the present time, she takes not to exceed a pint of milk a day and is allowed meat three times a week.

Efficient Surgery.*

H. M. Hepperlen, M. D., Beatrice.

In the year 1575 Ambrose Pare wrote in his edition which was dedicated to the King:

"God is my witness, and men are not ignorant of it, that I have labored more than forty years to throw light on the art of surgery and bring it to perfection. And in this labor I have striven so hard to attain discovery of first principles, that posterity will not be able to surpass us, save by some additions, such as are easily made to things already discovered."

*Read before Nebraska State Medical Association, Lincoln, May 9, 1917.

Almost three centuries later, a noted French surgeon wrote, in the preface to his work, that he considered the last word on surgery practically said in his edition and that what it contained would never be surpassed. These statements at the time they were made, may not have seemed so far exaggerated, and were, no doubt, made in good faith. Moreover, they might to this day have been accepted as true, had it not been for men like Pasteur, Virchow, and Lister, who opened up the field of microscopy, pathology, and antiseptic surgery, service, which, next to the discovery of anesthesia, mark the epoch of real advancement in our science.

At the present day no surgeon would dare think that he had attained the goal of complete perfection in his art, and our modern authors, in their very writings, reveal an apprehension that their manuscripts may become antiquated before they leave the press.

After reviewing the events of the past quarter of a century, the period which the writer has been engaged in the practice of medicine, and noting the phenomenal advance made in the surgical branch of our profession, one is constrained to feel that the profession owes to the world no apology. But to the past I shall devote little time. It serves only as a matter of record, and as a ground-work for future progress. The time that is peculiarly within the province of the surgeon, is that of today, and tomorrow.

At present the public is demanding that the surgeon be equipped with the various laboratory facilities, for X-ray and other examination, when necessary, to verify a diagnosis before operation. This equipment should be under the supervision of the surgeon, and a part of his paraphernalia for efficient surgery, since the day has arrived when a surgeon can hardly be classed as an up to date specialist, unless he has associated with him a roentgenologist, and a pathologist.

The present demand in the profession is, that the surgeon have special standardized training, requiring several years additional study before being permitted to practice his specialty, and if the American College of Surgeons, an organization whose motives are to standardize hospitals and surgeons, and bring them up to the highest point of efficiency, becomes a factor in the enactment of regulatory legislation, as I hope it may; if it remains fair and unbiased, succeeds with the work, it has undertaken, the time is near

when we shall see a vast improvement in efficient surgery.

Today there are many practicing, or attempting to practice surgery, who are utterly unfit for the work from their view points back to their training and temperament. To tolerate their continuance in the work, is to jeopardize the life and the health of the unfortunate who fall prey to their ignorance. So long as our colleges and states confer upon all, who enter the practice of medicine, the right to undertake any surgical work regardless of the extent or character of their previous training, we will have a higher average mortality than is consistent with the use of efficient methods in surgery.

We observe numerous comments at the present time upon the subject of the surgeon's fees. Not alone in the general press but even in our medical journals we are confronted with what to me seems largely an unjust criticism. There is no class of men that renders gratuitous services to those not able to pay so frequently as the medical profession, and I question whether any class in any profession can be found which does more without any expectation of compensation than surgeons.

Voltaire says that the most commendable feature of the work of a physician is, that "it enables him to rob the rich to pay the poor," I will state that we seldom or never rob the rich to the extent that we deserve, and we render extensive services to the poor for which we receive no pay.

There is however, one subject I dislike very much to mention, but which I shall touch upon before leaving the subject of fees. It touches a sore spot among a great many who have practiced surgery during the past quarter of a century and I am sorry to state, that the custom is not yet entirely eradicated. I refer to fee splitting.

The practice, no doubt arose by the young men in the profession, offering inducements to the general practitioner for his surgical work, thus enabling the young surgeon, to increase his income more rapidly than he could otherwise have done, in the face of competition with older men in the profession.

Such a practice could not continue long, without meeting the storm of criticism it deserved; and it is to be hoped that the time is not far off when a proper and drastic remedy will be found that will place the fee

splitter in such a position that the practice will necessarily be discontinued, under a penalty so severe, that no surgeon can afford to wear the brand.

Dr. Bowman in his address to the American College of Surgeons last October, after treating the subject in terms that it deserves, continued by stating that the fellows of the college thought they had devised a satisfactory remedy. My conviction is that every honest surgeon, who is working for the welfare of humanity, and the dignity of his profession hopes they have, as the practice is incompatible with efficient surgery. It enables the inefficient and unscrupulous operator, to take an advantage at variance with the ethics of a profession that demands and holds the dignity and respect that has ever been accorded it.

During an age of commercial activity and at a time when the greater part of the world is engaged in war, inspired by commercial jealousy, we may offer some apology for the entry of a custom of this character into the ranks of a profession, whose work offers the opportunity that ours often does, for what to some would seem only a business deal. But a business deal that must be accomplished surreptitiously can never be in accord with the ideas of a profession whose work deals particularly with the unfortunate and is performed at times when their helplessness requires our most conscientious services. Let us be open and fair with our patients, who are generally willing to reimburse us for honest service rendered. Thus we shall retain the respect due us which means more, both to physician and to surgeon, than can be gained by "slipping" a few dollars in exchange for a patient.

As for the future we can only advance our opinions, and these opinions must inevitably be largely speculative. I shall endeavor merely to give mine, as to some things that may operate for the advancement of efficient surgery.

It is claimed by the actuaries who are in position to know that a child at birth is worth to the state ninety dollars, which value increases till at the most useful period of its life when an adult to five thousand dollars. If these figures are correct and approximately they are, we must concede that a state's greatest asset is its people. It is no less true that the people's greatest asset is health. Conceding the truth of these statements, let

me ask, would it not be to the state's highest interest to introduce and promote the best methods available for the care and conservation of health?

We all know what the states are doing for the insane, the feeble minded, and in some instances the epileptics. In our state we have an orthopedic hospital to care for the crippled children, which is managed and controlled by state authorities, under men trained for their special line of work. It is my opinion that the time is not far distant, when our government will adopt some satisfactory plan, whereby all persons when ill may have an opportunity of receiving the attention of a trained corps of specialists, under either state or federal direction, in institutions so conveniently located, that those in need may receive efficient care and treatment.

Under such a system no heavy burden would fall on the unfortunate, nor would voluntary charity be called upon, to take care of those, whose care, naturally devolves upon the state, and the efficient service that would be rendered to all in the conservation of health, or its restoration, when lost, would well repay the people as a whole, for any financial outlay incurred.

The doctors connected with such a system would have the advantage of attaining the highest efficiency and at least one incentive to this would be a scale of salaries, adjusted to the rank and ability of the individuals. They would thus be relieved of the individual financial question, so distasteful to so many men whose time and thoughts should be devoted to their work alone.

It might mean that some of us would have fewer shares of worthless stocks, and gold bricks, stored away in the archives of our safes, but that it would make for perfection in our art, eliminate from our ranks a class that could well be spared, and accomplish other most desirable results must be admitted. For those engaged in the work requiring the highest skill, there would be preserved correct records, showing their work and its final results, and elevating them to the positions of eminence that would rightly be theirs.

In conclusion I will state that I believe that should the time come when our services might be rendered in connection with some such plan, we will be able to furnish and the public may reap the benefit of real, efficient surgery.

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Society's Duty to Mentally Deficient Children.*

D. G. Griffiths, M. D., Beatrice.

I have not attempted to make this a scientific paper but have taken up my subject more from the sociological side, hoping to make you more familiar with the facts concerning the defectives we are caring for in our own state institution at Beatrice.

We divide the mental defective into five distinct classes: beginning with the idiot, mental age one to two years, he who attends to the simplest functions for self-preservation; the low grade imbecile, mentally three or four years, does simple menial work; medium imbecile, mental age five or six years, does simple manual labor; high-grade imbecile, mentally seven years old who does complex manual work; the moron, mentally eight to

ten years, who does work requiring reason and judgment. The two last are the most dangerous to society.

The diagnosis of feeble mindedness requires the expert application or observation of the following combined tests: (1) medical psychological test, testing intelligence or thinking power, emotional characteristics and will power; (2) school tests, testing ability to progress in school; (3) industrial tests, ability to earn a living; (4) social test, ability to get along in the community; (5) family test, family history and home conditions; (6) physical tests, pertaining to the physical condition; (7) institution tests, observation during considerable period of time.

We have received during the past year sixty-seven children, fifty males and seventeen females. The average chronological age of the female is eighteen years, mental age, seven; of the male also eighteen years, mental

*Read Before Nebraska State Medical Association, Lincoln, May, 1917.

age, nine. This difference is probably due to the fact that we have received a greater number of boys than girls. This will also give you some idea of the number of applications we have for girls that could not be received because of inadequate room.

Among the sixty-seven received we find the causes given in the application, the only means we have at present of tracing the causes of feeble mindedness in this state, as follows: illness, nine; injury, six; pre-natal influences, two; paralysis, one; use of liquor by parent, three; syphilis, one; fright, one; born deficient, one; heredity, twelve; unknown causes, thirty-one. Practically 50% of those received during the past year have given the cause of their condition as unknown, while heredity is given as the cause of the deficiency for twelve of the sixty-seven, or less than 6%. This, I believe, is a very incorrect report because under our present system it is impossible to find the underlying causes producing much of the feeble mindedness of our state.

Just at this point I wish to emphasize the need of field workers for the institution who may go out and gather this data. At the same time I wish to urge upon every physician his duty, when these cases come to his notice of having the application blank filled out properly before committing to this institution as it can readily be seen how this would enable the ones in charge to know more about their wards.

Of the number received during the past year, we have nineteen morons or the highest type of feeble mindedness and the most dangerous to society; fourteen high-grade feeble minded, who are also a great menace to society and the dividing line between these and the moron is hard to determine at times. The middle grade imbeciles are easily recognized by everyone, are apt to be around in the community and brought to the institution more times after the father and mother have died, or, in the case of females, after the mother has gone, with only the father to look after them. Far too many times they are brought to the institution after some trouble more serious than this. Of this grade we have thirteen. The low grade imbecile is one who is simply able to feed himself and attend to the calls of nature; of these we have six. Of the idiots we have received seven.

I do not wish these facts to be taken as a representative ratio of the number in the

state. During the past year we have had many applications for girls, low grade imbeciles and idiots but have no room to care for them and as a consequence we have a great many applications on file for this grade of children.

In Wisconsin, the State Conference of Charities and Corrections and the Central Council of Social Agents are urging the state to make immediate provision for the care of 6,700 clearly defined cases of feeble mindedness at large in the state, improperly cared for. They also make the statement that only 1,304 are receiving custodial care in public or private institutions in that state at this time.

We have in 32 states, some of which make extensive provision for the segregation of the feeble minded and some which make some provision but not extensive, a total of 31,031 feeble minded persons. In sixteen state reformatories for both boys and girls, it has been proven that fully 50% were feeble minded and it is impossible to reform a feeble minded person because no matter how good their intentions may be, when their environment is such that temptation is thrown in their way, they have not the power to overcome it.

For instance, a universal condition of 182,000 English prisoners, 102,000 were repeaters, 10,000 have been convicted more than twenty times, others had been convicted over 200 times. Of the 182,000 twenty-nine thousand were unable to read and write at all and only 9,200 were able to read and write well.

What do you do that a feeble minded child cannot do? You decide between right and wrong: you appreciate the consequences of evil acts: you make plans for yourself and for your children. If you were not capable of doing these things, you would not be a safe member of society. There is an alarming number of feeble minded among murderers, paupers, thieves, prostitutes, unmarried mothers, alcoholics, narcotics, diseased and incendiaries and their pernicious influence can be overcome only by reclassifying all state wards, present and future, by providing for the known feeble minded of the state and an exhaustive survey for the detection, registration and provision for all existing feeble mindedness.

Feeble mindedness is inherited. If both parents are feeble minded, all their children

will be feeble minded. If one parent is feeble minded, some of their children will probably be feeble minded. Normal children of feeble minded parents may transmit feeble mindedness to their children.

Feeble mindedness is the most serious primary factor of poverty, misery and vice and is a fundamental cause of social degeneracy. It lies at the root of every social problem and retards the progress of every social movement. The feeble minded persons are not, just simple, merely unfortunate and perfectly harmless as often times regarded by the casual observer but are dangerously weak, irresponsible and an active menace and only constant care and supervision protects them and the community. Every feeble minded person is a potential criminal. Unrestrained feeble minded girls are the easy prey of the unscrupulous and the mothers of many illegitimate children.

In the case of criminals, society's attitude has been heretofore that all criminals are responsible for their action, unless they were clearly insane, very young, idiots or imbeciles and the general tendency has been in the reformation of these people to change their environment, make their surroundings pleasant and make it easy for them to accomplish their livelihood so that they will not again be led into a criminal life. A great deal has been accomplished along these lines but we shall soon realize, if we have not already, that on this track there is a barrier which we cannot surmount. Environment will not, of itself, enable all people to escape criminality, although much depends upon it. It is the question of responsibility. Those who are born without sufficient will power and judgment to make themselves do the right and not the wrong, have been the fertile source of criminality. From the standpoint of mental defectives, we are confronted with the same lack of intelligence, the same inability to control their actions necessarily leads these defectives into alcoholism whenever the environment is suitable.

It has been, and is, the aim of the management of the institution at Beatrice to create a communal life for these unfortunate defectives. It is my belief that they should be in school, that is, grade schools, until they attain a certain age, however, but very few of these children are able to go beyond the fourth or fifth grades in literary work although some show genius along some

certain line which they may be taught. The boys should be instructed in agriculture, horticulture, manual training, dairying, etc., great care being used to place every boy where he seems to be the best fitted. The girls should be taught domestic arts, not that they may go into the world and become members of society, managing their own affairs, because this is impossible, except in a very limited number of cases, but that they may be able to enjoy their lives to the fullest extent. They should also be provided with religious services, amusements, in fact, everything that the ordinary communal life would be upon the outside. No child is responsible for being in the state, hence the state owes this much to them but at the same time society has the right to step in and keep these people segregated that the next generation may not be burdened with the off-spring of this class of people in far greater numbers than at the present time. In other words, since these defectives are a part of the state just as you or I are a part of the state, it owes them a livelihood the same as it owes one to us if we put forth a reasonable effort to obtain it and in return has the right to control their offspring by keeping them segregated and saving them from themselves as well as the next generation from their kind.

It seems to me that in our sociological attempts we so often start at the wrong end. We see the finished product, the drunkard in the gutter; we see the girl low in prostitution and on the streets; we see the criminal who is sentenced to our penitentiary and we attempt to find ways and means of reforming this person, whoever he or she may be, while it has been proven in other states, and I have no doubt the same would hold true in this state, that 50% are mentally defective and some of them do not know right from wrong and those who do, have not the will power to overcome temptations when thrown in improper environment.

If the same amount of energy should be expended in reorganizing all state wards and providing a place for their segregation that they might be prevented from passing on to posterity the same taint; the providing of a communal life that they may enjoy their existence as much as they are capable of, we would not only be doing the best possible thing for society and humanity at large but we would be doing a great thing for our state from an economic standpoint.

Discussion.

F. A. Wells—This paper impressed me so much that I think the paper should be printed in every newspaper throughout the state. This would give every one an opportunity to read and know. This is one of the best papers I ever listened to and I am glad Dr. Griffiths read this paper. I am glad he impressed the point that so many inmates in houses of ill fame are feeble minded. A large percentage of children of feeble minded parents are also feeble minded and we must take care of them and prevent their getting married. There should be a law to prevent any one of low mentality getting married. I am not sure but that there is a law to that effect. Dr. Griffith's classification was fine and he should be complimented on this paper.

Floyd S. Clarke, Omaha—It seems to me these things should get before the public in a better way than at present. We physicians come here and listen to these papers and the public knows not of it. There ought to be some committee whose duty it is to publish these semi-public articles so that the people are informed on these subjects. We run across these mentally deficient children in our work and we don't know what becomes of them. It also occurs to me that in the schools these children require special care. At present, they are attending the schools in the same class-rooms as the other children. They should be in schools by themselves. In the larger cities, they are being taken care of by specially trained teachers. A great deal can be done in improving these children mentally and toward making them more useful citizens. They can be made to help themselves and at least become partly self-supporting.

J. B. Potts, Omaha—I think this is a very important matter and should be understood by the public. If the newspapers will not publish such a paper without so changing it as to destroy its value, I think we should appropriate sufficient funds from this association to send every member of the legislature, and all teachers and preachers in the state a copy.

We see many of these children in the eye, ear, nose and throat work. The parents bring them to us to have their tonsils and adenoids removed with the mistaken idea that this will make them mentally bright. It is our custom to carefully explain to the parents that the child is deficient and that no operation will remedy this. As often as possible we endeavor to have them see a neurologist in the hopes that he may be able to convince them of the necessity of placing the child in an institution. However, in the great majority of cases, the child goes home again and no such steps are taken.

It would seem to me that there should be some provision whereby the State Board of Health could be notified and these cases be forcibly, if necessary, taken care of by the state.

Dr. D. G. Griffiths, closing: The child can be sent to the institution and I would like to impress upon the doctors this fact: our institution at Beatrice, the only institution of its kind in the state, is very crowded at present but I believe the preference in room should be given to the moron or high-grade imbecile, the two classes most dangerous to society.

Report of Medical Section of the Nebraska State Committee of National Defense.

Committee met at noon July 20, 1917, in the Omaha Club, John E. Summers, Chairman, presiding.

Present: Drs. Jonas, Milroy, Bannister, Summers Aikin, of Omaha; Cummins of Seward, and Mullins of Broken Bow.

Absent: Drs. Lord of Omaha; Sturdevant of Lincoln and Allenburger of Columbus.

Chairman Summers read a resolution adopted by the North Carolina Committee on National Defense relative to the selective draft of physicians for Medical Reserve. Following a brief discussion, a motion by Dr. Jonas, supported by Dr. Milroy, was unanimously carried, endorsing the principles set forth in said resolution. The motion also instructed Chairman Summers and Secretary Aikin to draft a similar resolution for the Nebraska State Committee on National Defense, embodying the additional suggestion that the Surgeon General of the Army be authorized to nominate consulting specialists with suitable rank, whose duties should be purely professional and not executive. The motion was unanimously adopted. The resolution finally adopted and signed, is as follows:

"Whereas, Congress in its wisdom, has enacted a law authorizing the selective draft in the raising of an army, and is putting the same into effect today, and

"Whereas, the rank and file in the army is entitled to the best medical and surgical skill and experience that the country affords, and as the raising of an adequate medical service by the volunteer system has proven a failure, the selective draft should be applied with equal force in securing this adequate medical service for the army; therefore, be it

"Resolved, That we, the Nebraska State Committee of National Defense, Medical Section, recommend to the General Medical Board of the Council of National Defense that the said Board use all legitimate means towards having Congress pass a law adopting the principles of the selective draft to secure proper medical service for the Army.

John E. Summers, Chairman.
A. F. Jonas
W. F. Milroy
J. P. Lord
C. L. Mullins
H. B. Cummins
L. B. Sturdevant
J. M. Banister
C. A. Allenburger
Joseph M. Aikin, Secretary."

Copies of said resolution were sent to Major Franklin H. Martin, General Medical Board, Council of National Defense, Washington, D. C.; to our congressmen from Nebraska; to the editor of the Journal of the Nebraska State Medical Association, and to the Journal of the American Medical Association.

The meeting adjourned sine die.

Joseph M. Aikin, Secretary.

The Epilepsies.*

B. F. Williams, M. D., Lincoln.

The subject of epilepsy is a broad one, so broad that I have attempted to call attention to but a few points which, although not new, seem to me worth mentioning. Epilepsy may be defined as a symptom complex, chronic in nature, characterized by recurrent attacks of impairment or loss of consciousness, with or without convulsion and usually resulting in mental and oftentimes physical deterioration. The conditions have been known for thousands of years, but despite constant investigation many phases of the complex are not understood at this time. Causes without number have been assigned as etiological and exciting factors, but as you well know many of them are purely conjectural. The medical treatment of this difficulty has made little progress during the corresponding period. For nearly sixty years the bromides or some preparation of the bromides have been used indiscriminately in seizures. In many patients the effect of this treatment used without proper discrimination has proven more injurious than the disease itself.

The observation that emotional shock or fright has ushered in the initial seizure in a liberal percentage of cases has induced some to accept the psychogenic origin of epilepsy. The fact that the menstrual period brings a great number of seizures induces the surgeon to attack the pelvis as the basis of the difficulty. The history of a rap on the head at some time during life permits the same onslaught on the cranial vault, and the observation that many of these bromide surfeited patients are constipated permits another school to charge all the difficulty to the intestinal conditions.

The epilepsies are encountered in one out of every four hundred of our general population. They are for the most part idiopathic, and the only data of value pointing to cause, is the general observation that two-thirds of the cases show a neuropathic inheritance.

We can accept as proven, the fact that alcoholism in the parent begets neuropathic offspring. And as probable, chronic lead poisoning and syphilis produce a nervous system abnormally undeveloped and the proper soil for any sort of psychotic reaction.

That idiopathic epilepsy is a disease of youth and early adult life is proven by the

fact that three-fourths of the cases develop before the age of twenty years; and of the remaining twenty-five per cent two-thirds develop before thirty years of age. That defective brain development constitutes a favorable soil for epileptic seizure is observed generally in our institutions for feeble-minded youths. That a congenitally healthy brain undergoing cortical changes, degenerative in type, constitutes a favorable soil for epileptic seizures is impressed upon the observer who visits our hospitals for the insane. The post-natal factors aside from trauma and gross lesions, may be roughly divided into reflexes, psychogenic, focal and toxic.

The reflex factors, accepted by some and rejected by others, are the influences of disease processes, referred to the central system and by vaso-motor disturbances affecting the field of consciousness and invading the motor sphere, the stimuli producing reactions incoordinate and chaotic in character. The psychogenic cause refers to those cases in which emotional stress, of a profound nature, or psychic trauma result in mental outbreaks involving cerebration directly by the introduction of emotional states which are closely allied to seizure, manifesting both mental and motor symptoms or psychotic reactions, transient in character, without motor disturbance, recurrent and presenting the epileptic tendency to periodicity. The focal factor refers to those cases in which direct violence to the brain structure or its membranes through fracture or contusion associated with thrombosis and emboli result in mental and motor paroxysms. The fourth of toxic factor is that influence wrought by nephritis, anemia, gastro-intestinal disturbance or disturbances to the internal secretions as thyroid, pituitary, etc.

Dr. Thoms (1) of Palmer, Mass., reports forty-two epileptic autopsies in which heart and liver weights were studied. He adopted the general formula of considering normal all livers weighing between 1500 and 1800 grams and brains weighing between 1200 and 1400 grams. The liver and brain ratio was considered as 7 to 6. The summary of his report is as follows: Livers normal weight, 8; overweight, 2; underweight, 32; brains normal weight, 14; overweight, 12; underweight, 16. Forty of the forty-two cases revealed either abnormal relation between the liver and brain weight or abnormality of both. The most common gross abnormality in their

*Read before Nebraska State Medical Association, Lincoln, May, 1917.

order of frequency was atrophy of liver, atrophy of brain, overweight of brain, hypertrophy of liver. The question naturally arises, can we assume that abnormal action of a normal brain is secondary and structural changes in remote organs primary in cases of so-called epilepsy? And if such is true, what organs are involved as a primary factor in idiopathic epilepsies?

Uremic and infantile convulsions together with those resulting from administration of exogenous poisons such as strychnia are often observed in which autopsies reveal striking changes in liver, kidney, spleen or ductless glands, while the brain tissues appear normal. These observations have suggested searching the pelvis for the preponderance of primary lesions in all epilepsies. Almost every organ has been suspected and many extravagant claims have been set forth for certain surgical procedures directed toward organs, which to all appearance were functioning fully.

McKinney, Johnson and Henninger (2) reporting X-ray findings on bone changes at the base of skull, especially in the region of sella turcica, 95 cases of epilepsy were observed.

Seven cases revealed pituitary tumors.

Sixteen cases showed bony thickening and enlargement of clinoid processes at the base of the anterior fossa.

Twenty-two cases showed thickening without enlargement of the clinoid.

Thirty-five cases showed changes in clinoid processes, anterior fossa and body of the sphenoid bone. In fifteen cases no bony alteration was found. The conclusions were that frequent attacks rather than duration resulted in bony changes, also that the changes were found in idiopathic rather than symptomatic epilepsy. Finally they deduct as a conclusion that bony overgrowth is a local acromegaly and that the deposit is the result of venous congestion at the base of the skull; a hypopituitarism resulting from mechanical injury to the pituitary gland, followed or accompanied by an idiopathic epilepsy.

Gordon (3) writing of the influences of toxins of endogenous and exogenous origin and their ability to produce transient vaso-motor disturbances concludes that the ischemia in the cortex with focal symptoms

fleeting in character are due to circumscribed vaso-motor disturbances the result of toxic influences upon vaso-motor centers. He concludes that the basis is essentially metabolic, directly due to accumulation of toxic products within the organism. His observation in epilepsy leads us rather falteringly, but definitely in the direction of endogenous toxins, metabolic in origin, or the result of biochemical processes associated with bacterial life.

The observations of Reed (4) with reference to visceroptosis as a mechanical source from which such toxins arise are worthy of consideration. The so-called bacillus epilepticus theory of Reed served a useful purpose in calling attention to the intestinal stasis that exists in practically all epileptics, and while Reed (6) has acknowledged his error in describing a definite pathogenesis in epilepsy, he has not wavered in his contention that intestinal flora and their toxins induce the conditions which culminate in the peculiar psychic and motor phenomena which we term the epilepsies.

So one might continue with the observations of many who have detected certain phenomena in epileptics and impressed by the striking character have sought to establish the phenomena as suggestive causes. A world of literature exists, but out of it all there is a striking absence of the tangible evidence based upon microscopic, chemical and clinical foundation which the medical mind demands before accepting as scientific any theory of disease.

This paper is not a defence of any etiological theory, nor is it intended to establish a definite plan of treatment. Therapy in epileptics has been more or less empirical. Aside from the sedatives, hypnotics and eliminants some efforts along the line of organ therapy have been advocated. It was our privilege at the hospital for the insane to make a few observations with reference to methods of therapy and I submit these rough figures for whatever value they may possess.

Thirty-eight patients were observed in groups varying in size. Positive Wassermanns did not exist in any of the group and all of the patients were of the type ordinarily regarded as idiopathic epilepsies, and subject to attacks of grand mal.

Twenty-four patients were treated with one-tenth grain of iodide of mercury twice

daily for a two months' period with the result that during the period without treatment there were in the group a total of one hundred fifty-five seizures. In the same group during treatment there were a total of one hundred twenty-two seizures.

Six patients were treated with pituitrin hypodermically with the result that during the two months' period the six patients developed fifty-three seizures, while the same group of patients for a like period without treatment developed one hundred nineteen seizures.

Eight patients were treated with thyroid extract. The group developed eighty-four seizures while under treatment and without treatment developed sixty-four seizures. Our conclusions from therapy are therefore indefinite.

Twenty-four cases showed a decrease in seizures while under mercurial treatment; six showed a decrease in seizures under pituitrin; eight showed an increase under thyroid extract.

One method which, however, gives more constantly a decrease in seizures is the plan of carefully limited diet with vigorous elimination.

As to the dietetic control of epileptic patients, our observations have not supported the theory that a diet free from animal protein especially limits seizures. The fact that animal protein is vegetable protein scarcely altered seems good data to support the observations. The law of indestructibility of matter leads us to regard proteins of whatever origin as useful in body building, up to and not beyond the demands of the organism. Foods of any kind in excess of the immediate demands of nature doubtless provide increased pabulum for germ life and in an intestinal stasis the output of toxins is in direct ratio to the amount of media in which cultures may propagate. The inordinate appetite of epileptic patients is commonly recognized. The expense of nerve and muscular energy in paroxysms is such that the appetite may be the normal consequence, the demand of the exhausted cells for material with which to construct.

It is worthy of mention at this time, since all cases treated by increased doses of thyroid extract showed an increase in frequency and severity of seizures, that this observation harmonizes with Crile's kinetic theory.

As Crile suggests, animals are transformers of energy, this adaptation is made by means of a system, the different links of which are: the brain, the adrenals, the thyroid, the muscles and the liver; each a vital link, and each having its particular role. A change in any link modifying proportionately the entire kinetic system.

Conditions of hypo-thyroidism are attended by mental apathy, retardation and a corresponding ebbing of all dynamic force.

It seems in observing conditions of hyper-thyroidism there is a lowering of brain threshold to all stimuli, the reverse condition in all cases of hypo-thyroid secretion. It is as though the brain were sensitized. In line with this theory the thyroid extract transforming latent into kinetic energy, its administration in cases prone to explosive attacks of conversion of energy would intensify the vigor of the attack, and the patient would suffer an increase in severity and in frequency of attack by introducing into the organism this extract. It is quite possible that other organs than those named by Crile as constituting the kinetic system are concerned, a change in any link will modify proportionately the entire kinetic system. That a convulsive seizure is the outward expression of error in inhibition, referred directly to the organs having to do with converting latent energy into heat and motion, is readily accepted. To account for turbulent and chaotic activation of the system involves the nervous system and the activation of the brain cells of the cortex.

Our conclusions are therefore:

First, that epilepsy bears a distinct and definite relation to a neuropathic inheritance.

Second, exogenous toxins as alcohol as well as endogenous toxins as syphilis produce the neuropathic in whose offspring will be found suitable soil for epilepsy.

Third, the perverted nervous and mental phenomena while influenced by secondary physical states, depend primarily upon nervous states which begin in the ancestor.

Fourth, the treatment if scientific must consider the neurological basis as well as the physical excitant, and relief, if afforded, will be the result of dietetic, hygienic, and in some cases surgical regulations.

BIBLIOGRAPHY.

- (1) Journal of Nervous & Mental, Vol. 43, May, 1916.
- (2) Journal of Nervous & Mental, Vol 41, August, 1914.
- (3) Journal of Nervous & Mental, Vol. 4, August, 1914.

(4) Prior & Jones, *Med. Journal, Austral.*, March, 1916.

(5) Origin and Nature of Emotions, Crile.

Discussion—Epilepsy, Dr. Williams.

J. Lue Sutherland, *Grand Island*.—I wish to ask whether there is any relation between epilepsy and somnambulism? I am inclined to believe there is, although, as far as I know, they are not classed together. I believe somnambulism is a disease and should be reckoned with and that the somnambulist is to be pitied almost equal to that so readily given to the epileptic. If they are related it is very evident that hitherto the epileptic feature has been overlooked, which, had it been recognized and treatment instituted might have prevented its further development. I believe every somnambulist should be placed under competent medical supervision and thus might open a most fertile field for the prevention of epilepsy.

F. A. Wells, *Axtell*.—When we realize that throughout this country so much epilepsy exists, we should be able to see how very important a subject this is. There are three or four thousand epileptics in Nebraska and only 250 in our institutions. We certainly must pay attention to this. Dr. Williams mentioned the use of bromides. They have been used to excess and have only a limited range of usefulness. Alcohol and syphilis have a good deal to do with epilepsy, both in the ancestry and the individual. All of the epilepsies are due to irritation, either mechanical, toxic or mental. Mechanical irritations are due to external injuries or pathological changes caused by syphilis or alcoholism. Toxic irritations are due to toxins absorbed from the intestine or to the toxins of contagious diseases. Mental irritations are usually the result of hereditary neuropathic taint. Dr. Reed, who I think you have all heard about has taken a great deal of trouble to take radiographs of the abdominal viscera and claims a good many cures from operative corrections of visceroptosis. Dr. Reed is a good man and has given a great deal of attention to epilepsy. I think much as the doctor says, that a great many can be helped by regulation of the diet. I have noticed that these people have a great appetite and nearly always have constipation. We must not lose track of the elimination. Some can be helped by cathartics but these must not be used too much. I think the colony treatment the best. That perhaps is my fad but dozens of others say that where epileptics have to work out of doors and in gymnasiums it is a help. I think gardening should be the occupation of the epileptic and I hope that when the war is over, you will all try together with me to get a state colony established. We should have a colony in this state that would accommodate at least one thousand people. Some of these people are as bright as anyone, some are insane and the mentality of others is very low and they should be grouped and brought together. There is a strong bond of sympathy between epileptics. There is no record of one injuring another. Let us help them by giving them a chance to help themselves. They cannot be saved from suffering but they can be improved. A child can be given an education in these institutions and they will become partly self-supporting. We must look after this phase of society when this terrible war is over. There are institutions in

Ohio, New York, New Jersey and several other states. Kansas and Iowa are each starting one. Let us get busy and help our people who are depending upon us.

Dr. Williams (Closing).—In closing the discussion I wish to reverse the order of the discussion and refer first to Dr. Saunders' case in which relief followed a decompression operation. In those cases of head injury in which the history of injury is complete and focal symptoms point to definite location, we are always justified in trephining or doing a decompression. We must not, however, fall into the error of accepting the mere statement that the patient received a blow on the head at some time during life as justification for such procedure. Few people have not at some period received a rap on the head. Even in those cases where localization is possible we should be extremely guarded in prognosis and surgeons should always be truthful in their reports of results. That many patients improve following any surgical procedure is a matter of quite general observation. That the improvement is not permanent is also a matter of history.

Referring to Dr. Sutherland's question with reference to the connection between somnambulism and epilepsy, I am inclined to the opinion that somnambulism is the expression of a neuropathic state. That the unstable individual is one inclined toward automatism and subject to night-walking. We, therefore, look upon this as an evidence of an unstable nervous mechanism. We are not, therefore, able to connect directly the two conditions as depending upon the same psychomotor disturbance. Neither am I able to recall any literature on the subject which would supply evidence that night-walkers are especially prone to epilepsy. That night-walkers are neuropathic and may develop any type of mental disorder is quite generally recognized.

With reference to Dr. Wells' discussion I feel that it is quite generally recognized by medical men and by workers in sociology that the only adequate method of caring for the epileptic is by the farm colony method. In this institution he is protected from the demands of society; is permitted to follow in a modified way the activities of life; to enjoy the comforts of a home; to secure regular exercise and proper food; and in short to enjoy the necessary amount of custodial care without the sense of rigid confinement. In addition to this he is saved the mental strain of having to mingle with the insane and the insane are saved the psychic strain of witnessing the epileptic cry and seizure.

Late Hereditary Syphilis.*

H. B. Hamilton, M. D., Omaha.

Our definite knowledge of syphilis has increased more in the last decade than in the entire time since its recognition in the latter part of the fifteenth century. The discovery of the etiological organism, and newer methods of diagnosis have served to clarify many perplexing questions pertaining to this long known, but imperfectly understood disease.

*Read before Nebraska State Medical Association, Lincoln, May 10, 1917.

With this added knowledge, diseases which were sometimes said to be due to luetic infection, are now known to be syphilitic in origin, while a large number of symptoms and conditions for whose origin no explanation was satisfying, are also shown to have a luetic basis. Lesions which were supposed to be comparatively rarely caused by syphilis are found to be commonly so caused. For instance, Holt in 1911 says "the different lesions of the central nervous system which may be due to syphilis are all quite rare." While Veeder in one hundred cases of late hereditary syphilis found that in nearly one-half the infection appeared in some form of lesion of this system. Manifestations which have for years been described as the most common result of late syphilis are shown to be comparatively infrequent. The recognition of the spirochete has brought us face to face with the fact that the so-called parasymphilitic lesions, tabes, paresis, etc., are still active infections. The promised cure with a single administration of 606 has brought in its wake many heartbreaking awakenings. The date of the discovery of America marks also the discovery of syphilis. If it existed previous to this time, it was unrecognized. But not until the latter part of the 18th century was hereditary syphilis demonstrated by Stoll, Planck, Von Rosenstein and Sanchez and they even described the manifestations of the late hereditary syphilis—the syphilis hereditaria tarda.

Fournier thus defines it as a symptom complex of accidents of syphilis originating in a hereditary infection which manifests itself at a more or less advanced period of life, that is to say, in a majority of cases between the third and twenty-eighth year. The manifestations, however, may appear either earlier or later than these limitations. The patient may be apparently in perfect health without recognized evidence of syphilis until an advanced period of childhood or the late symptoms may have been preceded by the early symptom of hereditary syphilis.

No adequate explanation has been offered which accounts for the development of the late type of lesion as well as the longer or shorter interval between the manifestations or lack of manifestations and the late lesions.

Symptoms.

There may be none recognizable until some patent or obscure nervous symptom or a lesion of one of the special senses, suggests

a careful inquiry into the family and personal history, and laboratory tests determine the diagnosis, or some intercurrent disease or condition lowers the resistance and the indubitable evidence of lues is apparent. Good nutrition as in infantile syphilis and tuberculosis is a factor of large importance. In a general way, these children present a wasted appearance and a prematurely aged face. The child does not develop as do other children. Dwarfism and infantilism may result. The hair is scanty and late in appearance on face and genitals, the testicles are infantile. The child is anemic, undersized as to height and weight, is pale and thin with little or no adipose tissue, has poor appetite, little endurance and correspondingly little resistance.

Special Senses.

The eye has long held first place in frequency of lesions of late hereditary syphilis. Only recently have statistics seemed to relegate its affections to a secondary place and where there is but one lesion, interstitial keratitis is still probably the most frequent. Certainly lesions of the eye are frequently seen. One or both eyes may be attacked with interstitial keratitis either simultaneously or successively. It is often cured with difficulty, may recur and is seen most commonly between the ages of six and twelve.

Ears.

Deafness rapidly progressing to complete loss of hearing is very suggestive of late hereditary syphilis.

Skin and Mucous Membranes.

Rhagades and linear scars are to be looked for about both the mouth and anus. White smooth scars on the face or along the tibia are very suggestive. The mucous membranes may also show scars similar to those on the skin. Perforations of the septum or palate are usually the result of syphilis. Ulcerations may give rise to a fetid discharge and rapid necrosis occurs resulting in the well known deformities. The skin manifestations are likely to be nodular in character and either large or small and if neglected break down leaving deep ulcers with a scooped out appearance and an indurated border, which, healing show the white smooth scars above mentioned.

Teeth.

Syphilitic teeth are brittle and of poor quality, small, widely separated, peg shaped with rounded corners, grooved edges, curved, with

crescentic notches. These changes are seen most often in the upper central incisors. Thomas called the attention of the writer to the prominent corners of the molars and described them as the "bed post" formation. However, the presence of Hutchison's teeth is not conclusive evidence of syphilis nor is their absence of particular value in excluding it. Indeed if the more recent statistics are correct they are among the rather uncommon evidences of syphilis. There are no peculiar characteristics of the first teeth except their proneness to early decay.

Skeleton.

Syphilis in the growing organism stimulates bone production as illustrated in the natiform occiput and the olympian forehead. The tibia give the so called "saber blade" formation. Early these processes are painful and are frequently mistaken for rheumatism. Gummas occur in the tibia, frontal bone or sternum or elsewhere and at first are very painful. They may remain for years without apparent change and disappear, or most frequently break down and give rise to sinuses, which discharge for a long time.

Lymph Nodes.

The lymph nodes quite commonly are enlarged and remain so for years. They may be painful or painless. La Fetra states that if both epitrochlear glands are enlarged and there has been no skin lesion on hands and fore arms, the findings of syphilis is almost pathognomic.

Organs.

Affections of the liver, spleen, thymus, kidneys and other organs are not uncommon accidents in the course of late syphilis.

Nervous System.

Head divides syphilis of the nervous systems into two main types—syphilis meningovascularis and syphilis centralis, the one being a lesion of the vessels and meninges, the other of the nerve tissue itself, the one leading to subacute and chronic tertiary lesions, the other to the so called parasymphilitic lesions, the one amenable to treatment, the other not, for nothing can restore cells that are dead, and present remedies cannot reach the spirochetes. Both give rise to early symptoms as follows: Changes in character, behavior, aptitude and memory, disturbance of balance between emotion and reason, headache and changes in sensibility all forms of

disturbance of sleep, nocturnal psychoses, neuresthenic symptoms, and neuralgic pains due to root lesions. The differences in the anatomic and clinical consequences depend upon the nature of the tissues involved.

Feeble Minded.

Alfred Gordon studied 75 cases between the ages of 5 and 16 years with mental defects. Fifty per cent of these presented a positive serum reaction. Dean among 330 idiots found 15.5% with positive Wasserman. In the series of Veeder and Jeans there were 14 mental deficiencies.

Syphilis and Chorea.

Some French writers have attempted to accept a luetic basis for Chorea on the ground that the salvarsan treatment has especial benefit in chorea. Koplik undertook an investigation of 11 cases of chorea. and says: "I do not feel that we are warranted in tracing any relationship between chorea of Sydenham and hereditary or acquired syphilis." Morse after a study of 26 cases of chorea with particular reference to its etiology concludes "the conclusion is therefore justifiable that syphilis seldom if ever plays an active part in the etiology of chorea."

Simple nervousness, hysterical and hysteroid conditions, migraine, epilepsy, psychoses, moral degeneracy, mental weaknesses and idiocy are found with noticeable frequency in patients whose family history betrays a suspicious infection or whose serum or cerebro-spinal fluid gives a positive Wasserman, or in whom the administration of iodides and mercury produces a rapid and continued improvement.

Family History.

The following points in the family history are of more or less importance: Tabes, paresis, aneurism, aortic disease, apoplexy and sudden heart failure before fifty, cardio-vascular-renal deaths, severe chronic headaches, paralysis of the muscles of the eyes, insomnia, extreme nervousness, miscarriages, premature births, still births and finally apparently healthy children.

Wasserman.

The Wasserman reaction is stronger in hereditary lues than in any other form of syphilis and hence is correspondingly more difficult to make negative. Not only is this so but it is very apt to again become posi-

tive if treatment is stopped when it has been made negative as a result of treatment. A positive Wasserman is the most common important symptom of syphilis and is present in such a large percentage of all clinically positive cases that one is very doubtful about the diagnosis of late syphilis in any untreated patient who has a negative Wasserman.

A positive Wasserman may be the only symptom of lues present for years and then other positive symptoms develop. A large percentage of children in families in which one member gives clinical evidence of lues, give a positive Wasserman. These latent cases should be treated. It should not be forgotten that the cerebro-spinal fluid will occasionally be positive when the blood is not and vice versa.

Luetin Test.

The writer has had no personal experience with the Luetin test in late syphilis. DeBuys and Lanford in seventy-nine instances find it a reliable guide to the existence or non-existence of syphilis, and conclude that it is of more value in that it is more frequently positive than the Wasserman, and add that while the latter gives evidence of anti-bodies in the circulation indicating an active process, the former not only gives this evidence, but also indicates an existing syphilitic condition even though it be inactive. They admit the great difficulties in properly interpreting the test but many observers do not even mention it. Its simplicity and expense would recommend it.

Frequency of Lesions.

In young children, the most frequent lesions are the eruptions, rhagades, and condylomata. In older children, the most frequent lesions are of the bones, feeble mindedness, backward development and affections of the nervous system.

Diagnosis.

The diagnosis should rest on the symptoms as mentioned: history personal and family, with emphasis upon a careful inquiry into the family for suggestive evidence of infection. Wasserman reaction, luetin test, examination of cerebro spinal fluid, both cytological and chemical. In practically all cases with nerve involvement, there is an increased cell count; a large number of cases with apparently no involvement of the nervous system, show an increased count. One or two suggestive

symptoms and a positive Wasserman, mean syphilis. Certain cases whose serum is negative to the Wasserman, give a positive result when the test is applied to the cerebro spinal fluid.

Prognosis.

It is difficult in late syphilis to produce a negative Wasserman and much more so to maintain it. Acute lesions are often made to rapidly disappear with the use of arsenicals and mercury. Lesions of the central nervous system do not offer as yet very promising prospects, but are not entirely hopeless. Vision may be restored in keratitis. Veeder and Jeans conclude with the statement that "it has not yet been demonstrated that it is possible to eradicate an hereditary syphilitic infection of the 'late' type."

Treatment.

The acute lesions, with the exception of keratitis respond to the administration of salvarsan with rather prompt results. The consensus of opinion at the present time with reference to the arsenical preparations, is that they are of great value, but not of themselves sufficient. Mercury and iodides still hold a prominent place in the therapy of syphilis. The writer has a marked preference for the salicylate of mercury in albolene given intra-muscularly. Probably intensive treatment, with the arsenicals and mercury, with periods of rest, give best results. In a young or nervous patient, perhaps other modes of administering mercury are preferable to the intra-muscular. The main thing is to give mercury, and any method will serve. The more acute the lesions, the more valuable are the arsenicals. The more chronic the lesions, the more valuable are the iodides; in any event, mercury is indicated. The nutrition of the patient should be carefully looked after. The results of intraspinal medication, have not so far at least, been such as to justify its general use.

Conclusions.

The following conclusions seem justified:

1st. Many cases of infantile syphilis are imperfectly treated, or not presenting typical manifestations are unrecognized and untreated.

2nd. Each succeeding discovery in the world of syphilis, seems to enlarge rather than to narrow the proportions of the syphilitic problem.

3rd. It is important to remember that hereditary syphilis is a familial disease rather than an individual one.

4th. The value of the Wasserman test is determined by the ability and technique of the man who makes it. The Wasserman is probably the most common symptom—it is probably the most important symptom.

5th. Later methods of diagnosis and therapy have materially augmented our armamentarium in dealing with syphilis, but have not displaced those formerly in use. Clinical observation, the therapeutic test, mercury and iodides, are still potent factors in attempting to meet the problems of syphilis.

School Hygiene.*

J. W. Straight, M. D., Hastings.

Like Ancient Gaul, Medical Inspection of Public Schools is divided into three parts, viz: Sanitation, Physical Examinations, and Control of Contagious Diseases.

In Hastings all three departments are under the control of one medical inspector who receives a small salary, and the supervision of this work is carried out about as follows:

A monthly visit is made to each building for the purpose of observing the conditions with reference to heating, lighting, ventilation, cleanliness and sanitary conditions in general. These conditions are reported to the head janitor who carries out to the best of his ability the suggestions made by the inspector.

HASTINGS PUBLIC SCHOOLS
Medical Inspection

School..... Room..... Teacher..... Principal.....19.....

Halls..... Stairways.....

Floors..... Cleanliness.....

Toilets..... Windows.....

Lavatories..... Walls.....

Heating..... Desks.....

Grounds..... Lightning.....

Watter Supply..... Ventilation.....

Drainage..... Cloakrooms.....

Notes

..... Summary

While a great deal has been done in this department toward improving the sanitary conditions we have not yet accomplished all that there is to do. Sweeping, dusting and scrubbing require a great deal of manual labor and the janitors say that they already

have more than they can do. Improvement in the ventilation, heating and illumination of school buildings usually require structural changes requiring the expenditure of a great deal of money. These facts cause the school board to consider the needed changes a long time before acting, for the average school board has a much livelier respect for a penny than it has for a colony of germs, and progress is extremely slow.

Physical examinations are made of all school children at the beginning of the school year. These inspections (for they are strictly "inspections" and not thorough "physical examinations") are made in the school room. The inspector only attempts to examine the pupils by inspection of those parts of the body not covered by the clothing.

Each pupil is given a card by the teacher like the following:

HASTINGS PUBLIC SCHOOLS
Medical Inspection

To Parent or Guardian of.....
of the.....School:

This Medical Inspection Report Card shows the result of the inspection of your child. Please look it over carefully, sign your name and return.

.....Teacher.

.....Parent or Guardian.

.....Parent or Guardian.

Reverse Side of Card

The child will please return this card to the teacher as soon as possible.

Date of Inspection					
Heart			Tonsils		
Lungs			Adenoids		
Eyes			Teeth		
Ears			Skin		
			Disease		
Nose			Infectious		
			Disease		
Throat					

We respectfully call your attention to the fact that the abnormal condition, as indicated by the check mark above, has been found in your child and we suggest that you take the child to the proper person for advice and any necessary treatment. When you have seen your physician or dentist please report to teacher what has been done.

MEDICAL INSPECTOR.

*Read before the Republican Valley Med. Assn., Holdrege, May, 1917.

The children stand and as the inspector approaches each one holds out his hands with fingers spread widely apart. This gives opportunity to examine for itch, for eruptions of any kind, tobacco stain, dirt, tremors, etc.

Next the inspector looks at the neck, face, ears and head, including the eyes. Then the child is told to expose the front teeth by separating the lips, after which he opens the mouth wide for a further inspection of the teeth and throat. Then he is told to say "a-h" while the mouth is still wide open. This usually exposes the pharynx and tonsils to view; but if it does not a wooden tongue blade is used.

The findings are checked upon the card by

formity of the bones of the jaw and inability to chew the food properly. No difference how slight the defect it should have immediate attention for the comfort and physical welfare of the child. Therefore we urge you to go to a dentist at once for advice and any necessary treatment for your child's teeth.
Medical Inspector.

TONSILS AND ADENOIDS.

You will notice by the accompanying Physical Examination Card that your child has ENLARGED TONSILS AND PROBABLY ADENOIDS. These enlargements in the air passages interfere with the child's ability to breathe properly, and prevents the thorough purification of the blood and the natural development of the body. In this condition the child's mental and physical activities are below what they should be. Besides these evils the tonsils and adenoids furnish an entrance for various diseases into the body. Therefore we urge you to consult

Form 20

HASTINGS PUBLIC SCHOOLS	HASTINGS PUBLIC SCHOOLS	HASTINGS PUBLIC SCHOOLS
MEDICAL INSPECTION	MEDICAL INSPECTION	MEDICAL INSPECTION
Infectious Disease	Infectious Disease	Infectious Disease
TO PARENTS OF		
Name	Secretary Board of Health: .....	.....
School	You are hereby advised that	You are hereby advised that your
Disease	residing at.....	child has
Note	has today been excluded from school on account of an infectious	an infectious disease and is excluded from school until such time as
.....	disease	the Board of Health gives permis-
.....	and h.....parents have been advised to call their family physician.	sion to return. The child should see your family physician at once.
Date	Principal.	Principal.

an assistant. The card is then sent home by the child for the perusal and signature of the parent or guardian, after which it is returned to the teacher and put on file. This method insures a certain amount of attention to the matter from the parent.

If any defects are found a printed slip similar to one of the following is sent with the card to bring a little more clearly before the mind of the parent what should be done.

TEETH.

You will notice by the check mark upon the accompanying Physical Examination Card that your child has DEFECTIVE TEETH. The neglect of the teeth is one of the most common causes of disease and suffering. The loss of the teeth leads to de-

your family physician or a nose and throat specialist for advice.
Medical Inspector.

EYE.

You will notice by the check mark on the accompanying Physical Examination Card that your child has IMPERFECT VISION. This condition seriously interferes with the child's ability to study, and the continued use of imperfect eyes causes such symptoms as headache, blurring of the letters, smarting and burning of the eyes, drowsiness, etc. It may lead to more serious consequences in the future. Therefore we advise you to consult an oculist at once to discover whether anything can be done to improve the sight of your child.
Medical Inspector.

EAR.

You will notice by the check mark on the accompanying Physical Examination Card that your child has DISEASE OF THE EARS AND DEAFNESS.

Ear disease and deafness are very frequently due to causes which can be removed if attention is given to them in time. If neglected they may result in permanent deafness or in some chronic condition which is incurable and which might endanger life. Therefore we urge you to take the child to your family physician or to an ear specialist for examination and any necessary treatment.

Medical Inspector.

GENERAL HEALTH.

You will notice by the check mark on the accompanying Physical Examination Card that your child is NOT IN GOOD HEALTH. We suggest that, in justice to the child and for the sake of its future welfare, you have made an immediate examination by your family physician. The early attention given to apparently small ailments frequently prevents serious illness and permits the child to proceed with his studies without interruption.

Medical Inspector.

No medical advice is given, unless an occasional injunction to the pupil to keep his hands, face or teeth a little cleaner might be classed under that head.

In conditions not covered by one of these slips a note is written to the parent by the teacher.

In a case of infectious disease a pink slip like the following is filled out and the child is immediately sent home.

If deafness or faulty vision is discovered by the inspector or is suspected by the teacher the child is asked to come to the office of the Inspector where the necessary tests can be made. Under the present arrangement and compensation the Inspector cannot devote sufficient time to the work to examine each pupil for deafness or possible errors of refraction, and he relies pretty largely upon the teacher to make the discovery because she has the pupil under almost constant supervision.

The writer must acknowledge very intelligent and efficient assistance from the teachers in discovering these and other abnormal conditions among the pupils in our schools.

In those cases where abnormalities are discovered which affect the pupil alone the Inspector makes no attempt to compel parents to have the children treated, as you will observe by reading these slips. He only suggests or advises that the child receive medical attention. It is true that many of these recommendations go unheeded, but an increasing number each year accept this effort of

the medical inspector in good faith and consult their medical advisers and dentists.

If a school nurse were employed many of these cases which are now neglected might be followed up to the benefit of the pupil and the great enlightenment of the parents.

In contagious diseases the rules are strictly enforced and no one who has a communicable disease, or has been exposed to one, is permitted to attend school until there is no longer danger of his communicating it to someone else. In the upper grades where it is important that the child lose as little time as possible from his studies some lenience is shown in local skin troubles and the less important eruptive diseases.

One of the difficulties encountered in the control of contagion is found in the number of light cases where no physician is called. Many of these cases are never recognized as being contagious and no quarantine is established. Some families, even when the character of the disease is known, wilfully suppress all information in regard to it in order to escape the inconvenience of quarantine restrictions. Valuable assistance is given by the truant officer in these cases, and more might be given by a school nurse.

To control this difficulty as far as possible all children who have been out of school on account of sickness are required to present a certificate from a physician, preferably the inspector, showing that it is safe for him to re-enter school.

HASTINGS PUBLIC SCHOOLS
Office of
J. W. Straight, M. D.
MEDICAL INSPECTOR
Hastings, Neb.

Miss.....Principal.
.....
may return to school.....
.....Inspector

As a rule those who have had contagious diseases are not allowed to return to school for one or two weeks after quarantine is raised, depending upon the nature of the disease, and then only when he has a certificate from the medical officer or other physician.

In the case of diphtheria, in addition to the above precautions, one or more negative cultures from the throat are required for re-admission.

Recently we have made an exception in the case of measles where children who have already had the disease are permitted to go to school from a house where there is a case. In such cases parents are asked to see that the children wear only fresh clothing to school.

If a child is taken sick in school with an infectious disease his books, pencils, tablets, etc., are wrapped in paper at once and carried to the furnace and burned. Some times in special instances, fumigation may be resorted to in place of destruction by fire, but the usual practice is to destroy them. The desk is thoroughly scrubbed with soap and water and an antiseptic. If the disease is scarlet fever, diphtheria, measles or small pox the room is closed at once and fumigated as soon as possible and thoroughly scrubbed before children are re-admitted to it. If the epidemic gets a start in a school the entire building is treated in the same manner.

All buildings are fumigated at the beginning of the school year and at the Christmas vacation.

The methods followed in Hastings are copied somewhat after those in use in some of the larger cities of the country where the inspectors give their whole time to the work. In the smaller places where the inspector gives only part of his time it is necessary to modify these somewhat; and so, from our limited experience, we have built up the above outlined system which appears to serve the purpose fairly well in our particular community. And it seems to the writer that such a method would be entirely practicable, and of the highest benefit to the public, for adoption in village and country schools. A county, outside of the towns large enough to maintain their own inspector, could be divided into districts large enough to pay a salary sufficient to make it worth the while of a physician who could make an annual physical examination of all pupils, supervise the sanitary conditions, and give advice to the teacher with regard to the health conditions in the school. He would in this way come in contact with the teacher and pupils often enough to keep them alive to the importance of observing rules of health and cleanliness, and to assist them in controlling epidemics in the schools. At these visits he could give a five-minute health talk which would be of interest and benefit to both teacher and pupil; and since such talks would be reported in a large per cent of the homes

of pupils it would have a decided and far reaching influence for good.

The writer is convinced that the school health inspector should always be a regularly qualified physician who is paid for his services, and where the schools are not too large the work should be done by, or at least be under the control of one physician. The volunteer service is not so thoroughly done, and in case several volunteer to do the inspecting, as in some places, the work lacks uniformity which is a detriment. Furthermore it is a fertile ground for friction and jealousies.

Neither do we feel that the inspection should be done by a school nurse, as some advocate. A nurse can be of valuable assistance in going into the homes of pupils, and in encouraging and instructing ignorant and negligent parents to carry out the suggestions of the medical inspector; but she is not fitted by education as a regularly trained physician would be, to make examinations and diagnoses which constitute so large a part of the work.

In the beginning there is apt to be considerable opposition to any such innovation as medical inspection, but we believe that such opposition is usually based upon a misunderstanding of what the inspection really is, and that it will soon disappear. In Hastings there was no little remonstrance from several classes of people at this invasion of their rights; but with patience and perseverance we have been able to overcome a great deal of it. Now, some of our strongest supporters are those who opposed inspection the most vigorously in the start. Now we find that the people in general are very friendly to the medical supervision. Some of them in fact have become almost too enthusiastic and radical.

Feeling that more can be learned by an open and frank discussion of this question than by a long and tedious paper we shall content ourselves with these few suggestions and give a brief outline of the benefits to be derived from Medical Inspection of Public Schools.

Summary.

It tends to improve the sanitary conditions of the school building.

It educates the child along the line of personal hygiene.

It educates him to take better care of himself in both health and disease.

It educates him to assist in the prevention of con-

tagious diseases by being more careful himself and by reporting such cases as come to his knowledge.

It encourages and educates the parents to take better care of the health of their children.

It educates them to a more active interest and co-operation in conservation of the public health.

It protects teacher and pupil as well as the families of pupils against disease.

It improves the physical condition—and consequently scholarship—of such pupils as follows the suggestions of the inspector with regard to the correction of abnormal conditions.

The carrying out of these details relating to the health of the pupils also gives life and meaning to, and emphasizes the importance of, the study of physiology and hygiene.

It educates the public in general to a better appreciation of the value of health conservation.

Advantages and Disadvantages of the Country Doctor.*

G. W. Sullivan, M. D., St. Edward.

Two classifications of the country doctor's work have been made for one purpose. First, to classify his advantages that he can better utilize and enjoy them. Second, to point out his disadvantages that he might be more able to overcome and avoid them.

In the first place what is a country doctor? The country doctor is a man who deals with all of the ailments known to the human race indiscriminately more especially however in their beginning or onset. His knowledge must cover all of the so-called specialties or divisions of the practice of medicine, as every case he is called upon to treat comes under one of the specialties that has justly become so popular in the last few years. His next case may be anything from a foreign body in the eye to a craniotomy. The country doctor is also a popular servant. His opinion may be sought concerning anything from the possibilities of contagion in la grippe to the probabilities of recovery from operation for carcinoma of the liver, all of which is expected without compensation, but he must be a good fellow and risk his reputation on what he believes to be right. He may believe an operation would relieve or sufficiently benefit a patient to justify it being done, and after much persuasion and argument succeeds in getting the patient to go to some famous surgeon. The work is done and in some cases the results obtained are not as satisfactory as had been hoped for, and the patient at once returns to his country doctor with

about this story: "Doctor, I am not as well as I was before my operation after all this time, suffering and expense. You told me I'd be better. You must stand in with those grafters down there, etc." If he stopped there it would not be so bad, but he will never stop telling it to all he can get to listen with its more or less crippling effect on the confidence maybe of one's best patients.

But please don't accuse me of thinking that the specialist is not the man to send such cases to, it is the seemingly unavoidable condition that does in a few cases obtain and I feel that the responsibility is not always laid at the feet of the right man.

The country doctor is, strictly speaking, public property, his social as well as his professional conduct is ever bared to the criticising public and if he happens to be a very conscientious and sensitive individual, his mentality is apt to become deranged over some of the criticisms and accusations some jealous or ignorant street corner visitor is apt to voice.

In regard to the discharge of his duties the country doctor may well be termed an emergency doctor as he is called when the patient's condition is too serious to permit of his being taken on a long journey to a large city or for some ailment that could not possibly wait until such time as would be consumed in transporting him to a large city, or else he is too poor to meet the necessary expense incurred in such an undertaking. Is it any wonder the income tax has no terrors for the country doctor?

He is as it were on the picket duty shift continuously or one of the advance guards ever ready to scent the enemy disease and cripple it if not rout it entirely, and if necessary report or summon the army of specialists with their big artillery and they may have to resort to their curtain fire or trench campaign or the enemy may be victorious and the patient be a victim of the curtain fire of eternity.

An advantage that the city doctor has is the cooperation of hospital internes and nurses. In case his patient is not doing well the nurse can consult him intelligently over the 'phone and he can order a more or less effective treatment at once. While the country doctor is apt to have an experience similar to this: While operating on a throat

*Read before Nebraska State Medical Association, Lincoln, May, 1917.

case one day in my office the 'phone rang vigorously and an anxious voice said, "Doc, come kvick, mine vife is bad sick." Recognizing his voice I said, "What's the trouble Mike?" "Mine wife awful pain in belly, down on floor, come quick." I told him that I was busy and for him to wring towels out of hot water and to apply to the abdomen and I would come as soon as I could, and I continued with the operation but very often the phone would ring like a fire bell to which I paid no attention. But as soon as I had finished I drove out to Mike's and his wife was indeed sick, pulseless at the wrist and unable to speak. He had put her in bed and had covered her with a feather mattress and being unable to remove her clothing to apply towels had taken the tea kettle and poured hot water all over the abdominal region. But the country doctor gets to see his people when pain and sickness rends the brow, and he is allowed to see frail mortality in a very different light from that which other people see it. He sees human nature in absolute nakedness.

The community views one another with a veil thrown over their moral and physical affections; over their strong passions and feeble control, their blasted hopes and their sorrows that flow from their love, their ignorance, their hatred, their poverty, their frailties, their errors, their crimes, their emotions, their meanness, and the deep passions of the human heart. He will see the homeless and the betrayed, and deserted, the victims of intemperance and lust, of grief and joy, anger and shame, hope and despair; he will hear heart to heart conversations that it would be cruel to rehearse, and many a struggling human conscience will tell the secrets of its soul to him. He must guard them all with Masonic fidelity keeping his eyes and ears open but mouth shut. Yet I firmly believe that his branch or place in the medical field is as indispensable and important as any specialty that can be mentioned, and that the honest conscientious country doctor who is ambitious and faithful to those who have intrusted their lives and the lives of their family in his care is sure to receive the most spirited gratitude known to exist among human beings.

Functional Kidney Diagnosis in Urological Diseases.*

Geo. W. Covey, A. M., M. D., Lincoln.

Whenever one appears before a body of able and scientific men such as this, there must be in his paper that which justifies its existence. Too many papers are reassertions of prevalent views without the few qualifications which are necessary to make them valuable to those who are to hear or read them. With this in mind I have attempted to include in the following discussion not necessarily new thoughts, but such ideas as will bring to your attention a combination of the most adequate means of arriving at the exact status of the functional ability of the kidney, together with some of my own observations along certain of these lines.

Accurate prognosis in acute and chronic nephritis, passive congestion kidney, unilateral renal disease, bilateral stone, infection or polycystic kidneys, or in the obstructive diseases of the lower urinary tract depends largely on accurate functional kidney diagnosis combined with good clinical judgment. In acute nephritis so rapid are the changes that function may be practically nil today and in two weeks practically normal, a true functional though probably not organic recovery; only by repeated functional tests can the absolute ability of that kidney to do its work be determined.

In chronic nephritis with everything going evenly on the surface, uremia may supervene "out of a clear sky." It can be predicted and often avoided if the functional ability of the kidney and the blood urea or total non-protein nitrogen are determined frequently. Barring the probability of acute exacerbation of a chronic nephritis an accurate prognosis can be given by properly following up and functionally testing the kidneys in this class of cases.

In myocardial insufficiency the functional kidney ability may be equally as low as in severe secondary contracted kidney, but the reaction of this kidney to the kidney test meal of Hedinger & Schlayer is characteristic. The prognosis of the Cardiac condition is bad at this stage.

In unilateral or bilateral stone, tuberculosis, tumor, pyelonephritis, pyonephrosis and

(Continued on Page 400)

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The Richardson county plan of "practice cooperation" as noted in this issue is worthy of emulation by many County Societies. At any rate the plan deserves a careful and conscientious trial. A practical working basis is proposed which will assist those deserving members of the profession who respond to the clarion call for Reserve Corps doctors. Take this up in your county society.

Unity in Service.

History does not record a period when the public demand for qualified physicians equalled the necessity now presented for our service. Our Civil War from 1861 to 1865 created a national need for increasing the number of physicians in civil practice in the United States. That demand was answered by a multitude of diploma mills that flooded the country with uneducated physicians. Under legal sanction their business increased until in 1904 a committee on medical education originated by members of our American Medical Association initiated a house cleaning program. Their propoganda calling for fewer medical colleges adequately financed and ably conducted, increased our efficiency in preventing disease and taking proper care of the sick and injured. Our service to humanity through increased knowledge of sanitation and public health methods, research work and laboratory examinations

created a world demand for our assistance. Conditions we could not foresee imposed upon us by war, made imperative the present exercise of our utmost strength and cooperative action in military and civil practice. Were the needs limited to service in our own country, we could adequately respond to the call. We must care for our own boys on the sea and in foreign lands. If our sons, from homes poor and rich alike, are conscripted to fight that we may have a free country, they are entitled to the best medical and surgical skill the profession can give. Father, mother, brother and sister who remain at home can get along—if need be—with inferior medical attention. Our humanitarian ideals tell us to put aside all selfish ambitions by cheerfully offering our services without conscription, where help is most needed. Physicians who are well qualified and just attaining the zenith of consultation work dare not place profits above patriotism. We are morally obligated to serve humanity as our first duty. In addition to caring for our own, we must help that larger mass of men, women and children suffering and dying for the freedom into which we were born. The physicians in Nebraska were never better organized and more united for intelligent service than at the present time. In common with all our profession in civil practice we are awaiting legislation centralizing executive authority, in mobilizing our best men for effective service wherever needed. Congressmen now appreciate their inability to solve health questions that long since should have been intrusted to a permanent department of state under medical control. Our physicians and nurses must care for the wounded and sick in the army and navy, decide and control sanitation in camps, fields and base hospitals. The results of our usefulness to humanity will be judged by the court of public opinion regardless of adequate authority or the lack thereof, given us for compelling obedience to our commands.

Providing for Military Dependents.

At the recent meeting of the Nebraska State Medical Association a resolution was adopted by the House of Delegates providing for the care of the families of physicians who enter the military service. This resolution provides that a physician who enters the military service may supply his patients with cards stating that he has been their regular

family physician. Should the family need medical service after the physician they usually employ has been called to active service, they seek the services of anyone whom they may choose. When they enter the physician's office they either present the card or the newly chosen physician asks whether they have such a card. The physician then renders whatever service is needed but after he has been paid for his services he is to remit fifty per cent of the money collected from such patients to the secretary of the medical society of the county in which he resides. The secretary is then in turn to remit this money to the dependents of the physician in active military service. The plan is only applicable to physicians whose rank is below that of major.

This scheme is worthy of our support but as the State Association has no means of enforcing such a resolution, the success or failure of the plan will rest with each individual physician. We feel that the responsibility for the success of the plan is equally divided between the physician in active military service and the physician at home. We mean to say that the departing physician should do his part by seeing that his patients are supplied with cards, which may be obtained from the state secretary, and by seeing that his patients are made familiar with the plan. If this is done, we do not believe there is a physician in the state so niggardly as to refuse to do his part after his colleague has given his services to his country. The state of Iowa has adopted a similar plan as well as other states, which speaks well for the merits of the scheme.

The Physiology of Flying.

One of the bye-products resulting from the government's creation of a great aerial army is a renewed interest in the relation of man to the air about him, and, more fundamentally, in his relation to the three dimensions of space. All over the country candidates for aerial service are being whirled rapidly about in specially constructed chairs, the movements of their eyes noted and the departure in their directive powers measured. It should be clearly understood that the ability of man to maintain an upright posture and his appreciation of direction are dependent upon the normal interaction of many mechanisms whose existence is only acutely recognized

after one or the other is deranged—be it ever so slightly.

The atmosphere forms an envelope about the earth the thickness of which has been variously estimated at from fifty to two hundred miles and which bears down on the surface of the body with an average pressure of 14.7 pounds to the square inch. Men have not succeeded in raising their bodies more than seven miles above the surface of the sea level (Berson in a balloon reached 10,500 meters.) With the diminution of air pressure in rising to great heights the interchange of gases becomes so altered that life cannot be maintained. An impressive instance of this fact is given in an historical incident, described in detail in "La Nature," 1875, p. 337, in an ascent of the balloon Zenith carrying three observers, Sivel, Croce-Spinelli and Tissandier. The latter relates that at 7500 meters they were so weak that it was impossible for them to raise their arms to seize the oxygen tubes. At 8,000 meters Tissandier found himself unable to speak and shortly after he became entirely unconscious. The onset of complete unconsciousness was sudden but preceded by feelings of sleepiness not associated with any distress or violent dyspnea that usually precedes asphyxia caused by lack of oxygen. The effects of acapnia as brought out by later workers were not then appreciated. The greatest height recorded by the self-registering apparatus carried was 8,600 meters giving an oxygen partial pressure of 52.4 mm. Hg. The normal is 152 mm. Hg. Sivel and Croce-Spinelli lost their lives—Tissandier alone surviving.

It is perhaps unnecessary to mention the benumbing effects of the extreme cold that prevails in the upper regions of the atmosphere. At 10,000 meters the temperature was found to be minus 52 degrees Centigrade. The great depression in vital functions when the temperature becomes too high is a common summer experience. A classical example occurred on one of the hottest nights of British India, a little more than 150 years ago, when a youthful ruler of Bengal had 146 Englishmen, whom he had captured that day in a siege of Calcutta, confined within a small cell in Fort William. The room was large enough to comfortably house two persons; was heavily barred and bolted and its walls pierced by two small windows. Only a score survived the long night to relate the terrible struggling of the steaming mass of humanity

for the inadequate air. As the temperature rose, breathing became difficult, thirst intolerable and wild onslaughts were made on the windows thru which the guards passed water, not from feelings of mercy, but to witness with ghoulish glee the intensified ravings and struggles for relief. Ungovernable confusion led to delirium and those who sank to the floor were trampled upon, crushed and buried beneath the frenzied mass of humanity above. This, briefly, is the well known tragedy of the Black Hole of Calcutta.

It is however, neither temperature nor moisture, nor gaseous composition that most interests the examiner of candidates for aviation service. It is the question whether this man or that man is capable of recognizing the position of his body in space when he is suddenly deprived of the guiding impulses coming thru his vision. When, for instance, he has under his feet a shifting panorama of clouds and something equally definite over his head and on all sides of him. Until a practical stabilizer is found the aviator must supply such information with his semi-circular canals. These canals, six in number, are arranged in pairs so that they lie in the planes of the three dimensions of space. The nerve supply coming thru the vestibular portion of the eighth cranial nerve terminates in typical sensory areas, the cells of which are provided with long hair-like processes immersed in the endolymph which fills the membranous portion of the canals. A movement of the head, according to the usual conception causes a change of pressure in the endolymph, affecting the hair-like processes and thus stimulating the nerve terminations. The sensory impulses aroused combine with such as come from muscle sense terminations, from joints and tendons, skin, and from the retina, in coordinating the reflexes necessary to the adjustment of the moving body in space. The semicircular canals form a dynamic organ of equilibrium giving rise to sensations which are not distinctly recognized in consciousness and might be called labyrinthine sensations. The paths mediating the latter involve the nucleus of Deiters and the nucleus of Bechterew thru which they connect with the motor centers of the spinal and cranial nerves. There is a connection with the nucleus fastigii of the cerebellum and from here, possibly, to the cerebellar cortex. It may be assumed as probable that the cere-

bellum forms the brain center thru which the semicircular canal impulses exert their influence in coordinating muscular contractions. There certainly exists a great similarity between the effects of lesions of the cerebellum and the smicircular canals.

As to the manner in which the canals bring about a coordination of muscular movements the most plausible suggestion is that of Ewald who has shown that the internal ear maintains the muscles in a state of reflex tonus which is an adaptive tonus varying with the strength of the stimulus coming from the canals. To maintain equilibrium the labyrinthine impulses are constantly being combined with those coming from the eye, from muscles and tendons, joints and skin. These combinations take place unconsciously. Those between labyrinth and muscles of the head are clearly discernable in the action of the labyrinth on the freely movable muscles of the eye. No matter how the head is turned, the eyes are involuntarily readjusted thru an action of the cerebrum. If the adjustment is confused thru dissociation of impulses from eyes and ears—vertigo may result with an accompanying nystagmus. Such a dissociation is easily produced when a subject is rapidly turned in the plane of one or other of the semicircular canals or by local stimulation (heat or cold) applied to the fossa subarcuata. The subject tends to fall toward the side stimulated or in the direction of the slow phase of nystagmus. When the apparent movement of the subject's body is to the right, then the rapid phase of the nystagmus is to the right. The vestibular stimulation passes to the eye muscle nuclei, resulting in a contraction of corresponding muscles. This contraction stimulates the sensory endings and a centripetal impulse passes thru the motor nerves to the cerebrum by unknown paths. This stimulation of the cerebrum sends stimuli to the eye nuclei for quick relaxation and a contraction of the antagonists, producing the rapid phase of nystagmus.

Functional Kidney Diagnosis in Urological Diseases.
(Continued from Page 397)

polycystic kidneys it is not only essential to know as far as possible the amount of tissue destroyed in the sick or sicker kidney

but of paramount importance to know how much the other kidney is capable of doing. At this point we must remember that with disease of one kidney the function of the other kidney may be temporarily reduced: if we find it so, yet the clinical condition is good, surgery is not absolutely contra-indicated, but the prognosis should be more guarded. The result of therapeutic, especially surgical endeavor can be far more surely prognosticated if we take precaution to find this out.

In obstructive diseases of the lower urinary tract, especially enlarged prostate, stone in ureter and stricture of urethra, more or less dilatation of the upper tract occurs: with a proportionate destruction of renal parenchyma. This is frequently accompanied by infection, i. e. pyelitis, pyelonephritis, pyonephrosis, albumin and casts. Urine output and urea output may be normal yet the patient may be next door to functional failure, and this can only be told by functional diagnostic means. According to Rowntree (1) these cases should be put on drainage treatment and retested from time to time, when the functional ability will be found to rise, and surgical treatment is much more likely to be successful. Braasch (2), however, in a very conservative paper on this subject asserts that clinical evidence after treatment rather than functional tests should be the guide and gives a rather convincing array of facts as proof. I see no argument against using both, neither one to the exclusion of the other: judgment based on several criteria must be better than based on one.

One must remember that though we find a fair to normal function before operation, the given kidney may be operating within limits narrowed because of loss of its usual reserve power, just as a heart may be compensating and clinically normal but without reserve force, so that the added load of surgical procedure may overbalance it and result in uremia. However, uremia in a patient whose pre-operative function was fair to normal is less serious than in one whose function was markedly impaired.

Something must be said for routine functional kidney tests and blood chemistry in every puzzling case. When we speak of this, it sounds to most of us just as routine urinalysis or blood counts, or Wasserman reactions do to others of us, like a useless refinement; it is altogether too common to hear

the argument put forward that looking at the tongue tells him with proper amount of experience just as much. We are coming to the so-called "useless refinements" just as surely as can be, not only because scientific investigators are ahead pulling us along, but because the educated public are behind demanding better service.

Rowntree (1) cites the case of a little boy clinically a diabetes insipidus with a good prognosis. Functional kidney tests and blood analysis changed the diagnosis to secondary contracted kidney with impending uremia. This diagnosis was proven at the autopsy table in two weeks. I can cite cases of my own in which I have stumbled on to a reduced kidney function which adequately explained most puzzling clinical findings.

Methods of Functional Testing.

Many methods of testing kidney function will be mentioned only to discourage their use, not because something cannot be learned from them, but because a combination of certain other tests takes no more time nor trouble and gives infinitely more knowledge when completed. Lactose, diastase, phloridzin, potassium iodide, salicylate, methylene blue and indigo-carmin are among those commonly discarded. Indigo-carmin is frequently useful in finding the ureter in cystoscopic work and gives the relative functional value of the better kidney. It does not, however, give the absolute value of that kidney. Phthalein does so more nearly than anything yet known. Analysis of segregated urine of course has its place.

The combination of methods which gives the very best results, i. e. teaches us the most about kidney function, with a very little effort is the nephritic test meal of Hedinger & Schlayer, the phenolsulphonephthalein reaction of Rowntree & Geraghty, and the estimation of the blood urea or the total non-protein nitrogen of the blood. In actual practice not limited to hospital work it is not always possible to do things with as great regularity as we might wish, hence it will sometimes be but one of these sometimes all three, but usually if we try we can do them one or all as the case demands.

In the first place there are many cases of damaged kidney which do not show albumin and casts when they come to the physician for the relief of a group of symptoms not easily explainable unless we find the kidney

damage. Such a case comes to mind in this connection. A young woman whose urine on repeated routine analysis showed practically nothing, but whose functional test revealed an early contracted kidney, later consulted another physician. I was duly informed that he had made two urinalyses and found no albumin or casts, therefore, no kidney damage. The very laudable routine urine analysis does not pick these out, while the functional test does, therefore to give these patients what is due them they should be studied in this way.

Kidney Test Meal of Hedinger & Schlayer.

The principle of the nephritic test meal of Hedinger and Schlayer, more recently set forth by Mosenthal (3) and O'Hara (4) is simply an extension of the ordinary examination of a twenty-four hour specimen of urine, in which we control the intake of the normal diuretics of the every day food, and collect the urine output in two hour periods during the day and for a 12 hour period at night. We know how much water, salt and nitrogen goes into the digestive tract, at what hour it goes in, and the reaction of the kidneys to those normal diuretics. For my own work, largely outside the hospital I have simplified the intake just as much as possible. My own test meal is as follows:

1. One liter of milk.
2. One liter of water.
3. Six eggs.
4. Six oz. bread (six half inch slices).
5. One level teaspoonful (approx. 7 grammes) of salt to be used for seasoning as necessary and the remainder returned to the laboratory to be weighed.

A baked potato or a little fruit jelly may be taken with one or more meals to vary the monotony as they contain a negligible amount of salt and nitrogen. This diet is to be divided equally into three meals to be taken at stated hours, usually 8 a. m., 12 m. and 6 p. m. and absolutely nothing is to be eaten or drunk between meals nor until 8 a. m. the following morning. A capsule of potassium iodide and two capsules of salt each 5 gr. are taken with breakfast and 15 gr. salt in capsules with dinner and supper.

The urine is collected in bottles furnished ready labelled from the laboratory, in seven specimens, 8 to 10 a. m., 10 a. m. to 12 m., 12 m to 2 p. m., 2 to 4, 4 to 6 and 6 to 8 p. m. and from 8 p. m. to 8 a. m. the following morning.

The diet as outlined contains approximately the following: Water 2000 c.c., sodium chloride 7.7 grammes and nitrogen 13.6 grammes. To this is added the salt for sea-

soning usually bringing the salt up to 10 to 12 grammes.

The quantity, specific gravity, salt and nitrogen of each specimen are measured, and the intake and output compared. It is one duty and the chief one of the kidney to help maintain a constant composition of the body fluids. When extra quantities of nitrogen, salt and water are given a normal kidney it concentrates, within certain limits, its output to carry the solid matter. As a kidney is damaged it loses its power of concentration and in order to handle larger quantities of salt and nitrogenous material it must put out more of the solvent, namely water. This results in the picture known as hyposthenuria, namely, polyuria, with a more or less fixed percentage of salt and nitrogen and consequently a low fixed specific gravity.

Here I am going to rather arbitrarily state what results may be expected in certain kidney lesions, and as far as possible illustrate these from my own cases:

Normally, the kidney shows a rythmical response to the intake of the usual dietetic diuretics by an immediate increase in out put of water, salt and nitrogen and a corresponding fall in specific gravity; or to tabulate the normal response we get the following:

Day Urine Shows.

1. Rythmical response to intake of fluid.
2. Specific gravity varies inversely with the quantity and over 10 points.

24 Hour Urine.

1. Total (24 hr.) water output about 400 c.c. less than intake.
2. Total nitrogen output (24 hr.) 90% intake.
3. Salt and nitrogen over 1% in some specimens.

Night Urine.

1. Not over 400 c.c.
2. Above 1016 specific gravity.
3. Nitrogen and salt over 1% concentration.

Acute Nephritis.

As has been intimated above it is in the chronic nephritides that this procedure is of the greatest importance and the acute stage does not need it for diagnosis; yet if the acute is followed through by repeated test meals the outcome can be best foretold.

Case II. V. N. Age 19. Single. American. Student. Acute nephritis following streptococcic sore-throat; two weeks standing. Albumin 2%; granular casts; temperature 101.8 2-12-17. (Urea is tabulated: To get Nitrogen (urea/2) is approximate).

(Urine)			(Nacl)		(Urea)	
Time	c.c	Sp. gr.	%	gms.	%	gms.
8-10	80	1017	0.10	0.08	2.6	2.08
10-12	62	1018	0.09	0.06	2.6	1.61
12-2	90	1018	0.18	0.16	3.2	2.88
2-4	74	1013	0.08	0.06	2.8	2.07
4-6	83	1012	0.08	0.07	2.8	2.32
6-8	72	1014	0.06	0.04	4.4	3.17
8-8	327	1018	0.10	0.03	3.2	10.64
Tot. da	461	.....	.....	0.47	....	14.36
Tot.						
24 hr.	788	.....	.....	0.5	....	25.00=12.50
Intak	1600	.....	.....	6.75	....	9.88
Bal.	+812	.....	.....	+6.25	....	+2.62=21%

Resume—Water and salt retention; the latter marked.

Specific gravity moderately fixed but not low.

Slight nitrogen retention; night urine normal except salt retention marked.

2-24-17—Albumin reduced to faint trace. An occasional cast.

(Urine)			(Salt)		(Urea)	
Time	c.c	Sp. gr.	%	gms.	%	gms.
8-10	135	15	1.4	1.89	0.7	0.95
10-12	90	20	1.4	1.28	0.85	0.77
12-2	90	17	1.4	1.26	1.2	1.10
2-4	135	17	1.2	1.62	1.2	2.62
4-6	350	10	0.6	2.17	0.6	2.10
6-8	240	07	0.5	1.10	0.65	1.10
Total						
Day	1040	....	....	9.34	.....	8.64
Night	600	12	0.8	5.00	1.25	7.44
Total						
24 hr	1640	....	....	14.34	.....	16.08=8. N
Intake	2000	....	....	8.5	.....	13.64
Bal.	+360	....	....	—5.8	.....	+5.64=40%

Resume: Changed picture shows evidence of slight beginning chronic nephritis in noturnal hyposthenuria, i. e., increased quantity above 400 c.c. lowered specific gravity, below 1016; too low concentration salt and nitrogen, below 1%. Total retention of nitrogen above 10%. There is also an afternoon fatigue as shown by retarded diuresis in the afternoon.

Case III. M. F. Age 35. Female. Single. Nurse. First seen one month after severe streptococcus sore throat. Diagnosis acute nephritis. Heart shows accentuated second aortic. Temperature 102 plus. Albumin 42 grammes a day, many hyalin and granular casts. Blood pressure S. 180, D. 100 p 80. Slight edema.

The first nephritic test meal was not done until the acute attack had begun to subside, the albumin had fallen to 10-12 grammes a day and the number of casts had materially diminished. The following two charts show that she has in the course of five months assumed an equilibrium, a slightly damaged kidney; a chronic nephritis with moderate hypertension, which would, barring acute exacerbation, be compatible with comparative comfort for a fairly long time.

(Urine)			(Salt)		(Urea)	
Time	c.c	Sp. gr.	%	gms.	%	gms
8-10	33	1020	0.9	0.297	0.9	0.297
10-12	98	1016	1.2	1.47	1.25	1.23
12-2	65	1022	1.4	0.91	1.60	1.00
2-4	130	1019	1.1	1.37	1.80	2.34
4-6	145	1012	0.8	1.23	1.50	2.18
6-8	100	1014	0.9	0.90	1.80	1.80
Tot. Day	571	.....	....	6.17	.....	8.88
8-8	1450	1010	0.8	11.60	0.70	10.15
Tot. 24 hr.	2021	.....	....	17.77	.....	19.03=9.51N
Intake	2000	.....	....	6.00	.....	13.64
Balance	+21	.....	....	—11.7	.....	+4.13=31%

Retained

Resume: Day urine shows only delayed diuresis and very slightly subnormal nitrogen concentration.

Night urine three and one-half times normal quantity, very low specific gravity; low salt and nitrogen concentration; a marked nocturnal hyposthenuria.

There is a total polyuria and 31% retention of nitrogen. Early contracted kidney.

4-28-17. Albumin negative to a trace with an occasional hyalin and granular cast.

(Urine)			(Salt)		(Urea)	
Time	c.c	Sp. gr.	%	gms.	%	gms
8-10	225	1010	0.38	0.86	0.35	0.79
10-12	70	1017	0.80	0.56	1.40	0.98
12-2	85	1018	0.85	0.72	1.80	1.53
2-4	140	1016	1.30	1.82	1.70	2.38
4-6	190	1018	1.12	2.13	1.35	2.57
6-8	200	1015	0.88	1.76	1.30	2.60
Tot. Day	910	.....	.....	7.85	.....	10.85
8-8	725	1917	1.00	7.25	1.70	12.33
Tot. 24 hr.	1635	.....	.....	15.10	.....	23.18=11.59
						gms. N
Intake	2000	.....	.....	13.50	.....	13.64
Balance	+365	.....	.....	—1.60	.....	+2.05=15%

Resume: Day urine shows afternoon fatigue and slight fixation of specific gravity (10-18).

Night urine shows a polyuria with a low nitrogen concentration (85%) and a specific gravity just within normal.

Chronic Interstitial Nephritis.

(Primary or secondary contracted kidney)

It is in this condition that we get the most characteristic picture with the kidney test meal, namely, a hyposthenuria, a polyuria with low fixed specific gravity. One of the earliest developments in the kidney contraction is a nocturnal polyuria (over 400 c.c.) with a low specific gravity (below 1016) and a salt and nitrogen concentration below 1%. Mosenthal (3) tabulates the events in the usual order of onset as follows:

1. Nocturia.
2. Tendency to total polyuria.
3. Gradual fixation of specific gravity from higher to lower until it becomes absolute i. e. only varies one or two points in 24 hours.
4. Fixation of quantity of the two hour specimens.
5. Quantity of night urine may diminish to normal, but nitrogen remains low.

6. Retention of salt and nitrogen which becomes very marked.

Case III above under acute nephritis illustrates very well the early contracted kidney, as does the following:

Case IV. S. W. Male. 39 years. Active. Com-
plains only of nycturia and frequent severe head-
aches. Blood pressure S. D. P. Load.

	(Urine)			(Salt)		(Urea)		
Time	c.c.	Sp. gr.	%	gms.	%	gms		
8-10	300	1011	0.68	2.04	0.8	2.4		
10-12	200	1017	1.00	2.00	1.1	2.2		
12-2	385	1008	0.45	1.75	0.7	2.7		
2-4	95	1024	1.18	0.11	1.9	1.8		
4-6	65	1026	1.10	0.07	2.0	1.3		
6-8	105	1021	0.81	0.09	2.1	2.2		
Tot. Day	1105	.....	.....	6.06	....	12.61		
Night	745	1018	0.55	4.10	2.0	14.90		
Tot. 24 hr.	1895	.....	.....	10.16	....	27.51=13.70	N	
Intake	2000	.....	.....	4.25	....	13.64		
Balance	+105	.....	.....	—4.90	....	—0.06		

Resume: Shows only nocturnal polyuria with a tendency to total polyuria.

Case V. M. A. Female. Age 61. Achlorhydria and chronic nephritis with moderate hypertension. Blood pressure 180-192 Systolic; 100-110 Diastolic, pulse pressure 80, load 0.8. Slight edema feet and lids.

	(Urine)			(Salt)		(Urea)		
Time	c.c.	Sp. gr.	%	gms.	%	gms		
8-10	40	1020	0.8	0.32	1.45	0.58		
10-12	65	1011	0.7	0.46	1.70	1.11		
12-2	225	1006	0.4	0.95	0.60	1.35		
2-4	100	1017	0.6	0.6	1.20	1.20		
4-6	90	1015	0.95	0.86	1.60	1.40		
6-8	225	1006	0.48	1.08	.45	1.01		
Tot. Day	745	.....	.....	4.26	.....	6.69		
Night	600	1012	0.8	4.80	1.40	8.40		
Tot. 24 hr.	1345	.....	.....	9.06	.....	15.09=7.50N		
Intake	2000	.....	.....	7.05	.....	13.64		
Balance	+655	.....	.....	—2.00	.....	+6.15=50%		

Resume: Nocturnal polyuria with low specific gravity and low salt and nitrogen concentration.

Delayed diuresis during day with low concentra-
tion of salt and nitrogen and a 50% retention of
nitrogen.

Not having at hand a nephritic test meal record on a case of advanced contracted kidney I have taken the liberty to copy such a record from the article of James P. O'Hare of Boston, Archives of Internal Medicine, June, 1916, pp. 744, case No. 29, table 73. "No. 2449, female, aged 18, single. Diagnosis: Chronic nephritis and hypertension. Blood pressure 258-218 Systolic; 174-150. Diastolic.

	Water Specific		Nitrogen		Salt	
March 19	c.c.	Gravity	Grams.	%	Grams.	%
7-9 a. m.....	47	1012	0.21	0.45	0.06	0.14
9-11 a. m.....	58	1011	0.23	0.49	0.16	0.24
11 am 1 pm....	98	1010	0.27	0.28	0.25	0.26
1-3 p. m.....	108	1010	0.37	0.34	0.37	0.34
3-5 p. m.....	73	1011	0.32	0.44	0.18	0.25
5-7 p. m.....	61	1010	0.31	0.50	0.13	0.21
7-9 p. m.....	74	1010	0.35	0.47	0.19	0.25
9 pm 7 am.....	430	1009	1.81	0.42	1.12	0.26

Summary: Fixation of all elements, both total output and percentage concentration. Slight response in normal time to noon meal in all elements."

We must remember first, that the anatomical and functional changes are not always parallel, but as we approach the limit in contracted kidney they become more and more so. Secondly, there are several other things renal and extra-renal which may cause equal fixation in urine; most of these can be differentiated, many can be cured, and the prognosis is the same, namely absolutely bad in any of them if something cannot be done to relieve the condition. Mosenthal (3) gives the following classification of causes of low fixed specific gravity.

1. Causes in the urinary passages; pyelitis, cystitis, hypertrophied prostate.
2. Causes in the blood: marked anemia.
3. Causes in the kidney itself: Polycystic kidney, chronic interstitial nephritis, diabetes insipidus.

Chronic diffuse nephritis gives a somewhat variable picture, as it does clinically; however, salt retention with a normal nitrogen and, when there is formation of edema, water retention, is the most constant finding. This with the finding of more albumin and higher specific gravity than that described above points to the more diffuse or so-called parenchymatous form.

Passive Congestion Kidney.

When we find a high fixed specific gravity, with retention of salt, a normal nitrogen output, a normal night urine and a tendency to oxliguria we should think first of a passive congestion kidney. The following case illustrates this very nicely.

Case VI. Mrs. S. Female. Aged 56. Married. Diagnosis: Arteriosclerosis with cardiac decompensation; blood pressure systolic 210-195 Diastolic?

	(Urine)			(Salt)		(Urea)		
Time	c.c.	Sp. gr.	%	gms.	%	gms		
8-10	45	1026	0.7	0.32	3.2	1.44		
10-12	60	1025	0.7	0.41	3.3	1.98		
12-2	38	1030	0.6	0.22	4.4	1.48		
2-4	48	1030	0.4	0.19	4.0	1.92		
4-6	65	1030	0.5	0.33	3.6	2.94		
6-8	55	1029	0.4	0.22	4.4	2.42		
Tot. Day	311	.....	.....	1.68	....	12.17		
Night	275	1028	0.8	2.15	3.9	10.73		
Tot. 24 hr.	586	.....	.....	3.82	....	22.90=11.45N		
Intake	2000	.....	.....	12.2	....	13.64		
Balance	+1414	.....	.....	+8.4	....	+2.1 =18%		

Resume: Oliguria, high moderately fixed specific gravity; salt retention, normal nitrogen, normal night urine.

Phthalein and Blood Chemistry.

Most if not all of you are familiar with the phenolsulphanephthalein method for testing kidney function, and it is not my object to discuss it, further than to recommend that it is a simple, reliable chemical method, giving us a means for checking our clinical observations, our routine urinalysis and our

nephritic test meals of which we should be making use.

Blood chemistry as applied to medicine is in its infancy but it is surely destined to grow. If we wish to make an exact diagnosis and prognosis as we should we must know the blood urea, the total non-protein nitrogen of the blood, the blood sugar, the blood creatinine, the blood uric acid, and their relationship to the excretion of these substance in the urine, as the particular case demands. The processes of analysis have been so far simplified that it is not beyond the least of us to do them either from the standpoint of time or experience. I would refer you to a recent paper by Miles J. Breuer (5) appearing in the Nebraska State Medical Journal, for an adequate discussion of the value of blood analysis.

These latter methods have been lightly passed over, not because of their lack of value, but because lack of time requires limitation of field. Treatment has been purposely omitted both because my subject is diagnosis and because treatment is a fit subject for a complete thesis.

References.

1. Rowntree, L. G., M. D., Baltimore, Md. *American Journal of Medical Science*, March, 1914, p. 352.
2. Braasch, W. F., and Thomas, G. J., Rochester, Minn. *Journal of American Medical Assn.*, Ixiv, 1915, p. 104.
3. Mosenthal, H. O., M. D., Baltimore, Md. *Archives of Internal Medicine*, Npv. 1915, p. 733.
4. O'Hare, Jas. P., Boston, Mass. *Archives of Internal Medicine*, xvii part i, No. 6, June, 1916, p. 711.
5. Breuer, Miles J., Lincoln, Nebraska. *Nebraska State Medical Journal*, Feb., 1917, p. 227.

Further References.

Meyers, Fine and Lough, New York. "The significance of the uric acid, urea, and creatinine of the Blood in Nephritis." *Archives of Internal Medicine*, April, 1916, p. 570.

Mosenthal and Richards, Baltimore, Md. "The Interpretation of a positive nitrogen balance in Nephritis." *Archives of Internal Medicine*, February, 1916, p. 329.

Lewis, D. S., M. D., Baltimore, Md. "The Clinical Value of Ambards Coefficient of Ure Excretion." *Archives of Internal Medicine*, January, 1917, p. 1.

Frathingham, C., Boston, Mass. "Value of Certain Tests for Diagnosis and Prognosis in Chronic Nephritis." *American Journal of Medical Science*, June, 1915, p. 808.

Folin and Denis. "New Methods for the Determination of Total Non-Protein Nitrogen, Urea and Ammonia in the Blood." *Journal Biol. Chem.* 1912, xi, p. 527.

Technique of Prostatectomy.*

O. H. Hahn, M. D., Hastings.

In presenting this paper before this society, it is not my intention to bring a new method or to explode any previous theories, but to review and call attention to a more conservative and more efficient surgery.

In most instances, we are dealing with a class of patients who can little withstand any surgical procedure and absolutely cannot stand any operation which necessitates prolonged narcosis. For this reason, alone, no detail of technique should be overlooked which will aid in lessening the time the patient is subjected to an anaesthetic.

Death following prostatectomy by any method is usually caused by shock, renal insufficiency, or pulmonary or cardio-vascular complication. Shock following any surgical operation, leaving hemorrhage out of consideration, is in direct proportion to the length of time required to perform it, and the amount of anaesthetic the patient consumes.

The ability of the kidney to properly functionate is also reduced by prolonged anaesthesia; therefore indications exist for a rapid operation as well as for conservation of the vitality of the patient in every way before, during, and after the operation.

In outlining this technique, we will assume that the patient to be operated upon is suffering from a simple enlargement of the prostate without complications. The preparation of this patient we will say twenty-four hours previous to the operation, is as follows: The abdomen and pubes are shaved and washed with green soap, and a dry sterile dressing applied. At the time of the operation, the patient is brought to the operating room and placed upon a table, the bladder being irrigated and distended with a sufficient amount of fluid. The field of operation is sterilized by a tincture of iodine method, preparation being the same as for an abdominal operation, sterilized towels, etc.

The advantage of this method of preparation is that the patient is not compelled to lie in a pool of water, chilling the body surface, as in the old method of sterilization. Instead, he is kept warm and dry up to the time when the incision is made.

After all preliminary preparation has been completed and the towels arranged, the surgeon is ready to commence operating and not

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until then is the anaesthetic started. The different anaesthetics which may be used are nitrous oxide and oxygen, or a local anaesthetic. I prefer chloroform, as the use of ether in urology has a distinct disadvantage. Many patients die from destroyed cardiac compensation produced by an exacerbation of a chronic lesion induced by this anaesthetic. Chloroform is probably less dangerous if administered by one skilled in its use.

Let us take the operative technique, step by step as follows:

1. The bladder is thoroughly irrigated and distended with boracic acid solution.

2. An abdominal incision is made just above the pubes, from three to four inches long. This incision is cut down to expose the sheath of the rectus muscle; the sheath being divided, its muscle fibers are separated and the fibers of the pyramidalis muscle divided by a blunt dissection which opens upon the prevesical space.

3. The bladder can be recognized by the characteristic venous arrangement upon its surface. The peritoneum is gently pushed backward without opening into the general abdominal cavity. To make as little dissection as possible of the prevesical space to guard against infection of this region as well as the production of hemorrhage by injuring the contained venous plexus.

The forceps are now introduced, the fundus of the bladder lifted into the wound and gauze packing placed around the edges of the abdominal wound; this is to prevent soiling when the bladder is opened and its contents evacuated. An incision is now made into the bladder large enough to introduce two or three fingers. It should be made upon the fundus, closing the peritoneal reflection. This may seem to be unimportant, yet, if not done, it may hinder healing of the wound.

5. Next the enucleation of the prostate is commenced by pushing the finger into the internal meatus, pushing through the roof of the urethra at the point where the lateral lobes lie in apposition. The finger is within the encircling fibers of the sphincter. The finger frees the lateral lobe in the front and at the side and the lobe is delivered into the bladder. The finger is carried around below the median lobe. The other lateral lobe is then loosened. The prostate is lifted up in the bladder and the urethra severed close to the median lobe.

While this step is being done a good assistant should insert the gloved finger into the rectum with a little upward movement, which will be of great help to the operator. Bleeding comes from the region of the cavity left by the removal of the gland and edges of the bladder around the internal sphincter. A long piece of gauze wrung out of very hot salt solution and packed into the cavity will check any active hemorrhage in a few minutes. This should be done before the drainage tube is sutured into place and the bladder wound closed, the packing being removed, however, before complete suturing.

We are now ready for the closeure of the wound. A drainage tube is inserted into the bladder at the upper angle of the bladder wound and the lower angle sutured tightly, up to the tube, sewing from below upwards.

The drain may be put in at the lower angle of the wound down to the perivesical space. The method of closing the wound is the same as closing any abdominal wound, some taking through and through sutures and others sewing layer by layer. In this way the bladder can be irrigated either by introducing a catheter through the urethra and getting a circle of the solution which you wish to use from the upper drainage tube through the urethra, or vice versa.

The next method is the perineal which has been done by men of skill and preferred by some rather than the suprapubic method, because one is not only guided by the touch but by the eye also.

We will take this method step by step, as we did the other:

1. An inverted "V" or "Y" shaped opening in the perineum is made and the lateral arms of the incision are directed outward and backward to the length of about two inches on each side. The incision is carried through the skin and fat and the superficial fascia and the median tendon of the perineum is exposed. By dissection with the index finger, the space on either side of the center tendon is opened up as far as the triangular ligament. In this dissection, the levator ani muscle is shoved backward and upward on either side and the transverse perineal muscles are pushed forward.

2. The central tendon of the perineum is now divided and the attachment of the urethra and rectum is exposed. The recto-urethralis is exposed after severing the tendon

of the perineum. The fibers of the muscle are now cut close to the bulb of the urethra, care being taken not to injure the bulb as this may make troublesome hemorrhage. The bulb having been freed and the membranous urethra having been divided, the rectum is pushed upward and a good view is obtained. The membranous urethra is now opened upon the sound in the urethra and picked up by Allis clamps, being sure to get the mucous membrane in its grasp. Now, the sound in the urethra is withdrawn and a prostatic tractor is introduced through the opening in the membranous urethra into the bladder, traction being made upward upon it, thus exposing the surface of the prostate. The blades of the prostatic tractor are now opened and turned at right angles and securely locked. Traction upon the prostate and further separation of the rectum from the posterior surface of the prostate is carried out. Sometimes the rectum is attached to the prostate so intimately as to make separation rather difficult. Extreme carefulness for fear of injuring the rectum or opening into the lumen should be taken. After the prostate has been brought down and separated from the rectum, the lateral tractors are made use of. Two lateral capsular incisions are now made on either side of the median line for the entire length of the posterior surface of the prostate. This is to prevent injury, if possible, to the ejaculatory ducts and the floor of the urethra outside of the field of enucleation.

4. Through these incisions, the capsule is separated from the posterior and external surface of the lateral lobes on either side, by dissection. The urethral surfaces of the lobes are also separately dissected and the firm adhesion to the capsule at the apex of the lobe is divided with scissors. The index finger is used to complete the enucleation and the lobes are delivered through the capsular cuts, first one lobe and then the other.

The median lobe, if present, is now engaged in one of the blades of the tractor and an effort is made to deliver it into the cavity remaining after the removal of the lateral lobe. After removal of the prostate gland, a double current drainage tube is introduced into the bladder through the opening in the membranous urethra and the lateral cavities made by the removal of the prostate are packed with gauze to prevent oozing. The edges of the levator ani muscles are brought

together by a few stitches of catgut and the skin wound approximated by stitches of silk-worm gut. All drainage outward is placed at the apex of the skin wound.

The post-operative treatment in both methods is practically the same, such methods as irrigation, getting the patient up as soon as possible and watching for any complications which might arise; but the main feature, as I have said, in both methods, is getting the patient up early, as these patients should not be left in bed too long.

The June A. M. A. Meeting.

The House of Delegates convened in the auditorium in the New York Academy of Medicine, Monday at 10 a. m., June 4th. The House was called to order by the chairman, Dr. Hubert Work of Colorado. Dr. Work made an ideal presiding officer, thoroughly conversant with parliamentary rules, constantly on the alert and eminently just in his rulings.

The excellent secretary, Dr. A. R. Craig, has the business of the Association so thoroughly in hand that no time is lost in looking up reports or data.

Dr. LeRoy Crummer, delegate from Nebraska, received an appointment on one of the important committees.

The forenoon session was given over almost entirely to the reports of the various standing committees. Some of these reports were read in abstract as they were altogether too long to be read in open meeting.

A report by Dr. Bevin on Medical Education is printed in pamphlet form and is well worth reading. This report deals with the whole phase of education, going carefully into the subject of the grade and high school work. The gist of it was that one or two years are actually lost in the duplication of work and that the medical student completes his course too late in life. Another gratifying fact is that the American medical schools today are equal, if not superior, to those of any other country.

A report on Fraternal Insurance was presented by Dr. Lambert of New York. This was a very elaborate report and is, also, published in pamphlet form by the A. M. A.

The report of the Committee on Scientific Assembly aroused some opposition. This report made the suggestion that too much time

is given to the sections and recommended that the ten sections have but three units, excepting the section on Stomatology have two units. The delegate from this section at once asked to have it restored to three and this was done.

The delegates from the section on Nervous Diseases and Diseases of Children made a protest, but the house voted to sustain the report of the committee. The writer reported this to the section, and the chairman appointed a committee of three of which Dr. Abt of Chicago was chairman to have the house reconsider this report.

In addition to the reports of the regular committees, a number of resolutions were introduced and referred to their committees. Many of these were reported back on Tuesday and acted upon by the house.

Dr. Billings of Chicago addressed the house on the subject of the health of the soldiers being assembled. He stated in substance that the surgeons did not have sufficient authority in the housing and allotment of air space for the soldiers. As a result, a committee of which Dr. Billings was made chairman, was appointed to confer with the authorities in Washington.

The house met for a final meeting on Thursday at 2 p. m. The first order of business was the election of officers. Dr. Arthur D. Bevin of Chicago was elected president without opposition. Dr. Bevin's work as chairman of the committee on medical education, in addition to his natural ability, justly entitled him to his distinguished honor.

At the close of this session, when new business was called upon, a motion was made by Dr. Kohn to reconsider the report of the committee on sections. After the house had been addressed by Dr. Jacobi of New York and Dr. Abt of Chicago, and the motion had finally been amended to include all sections, the house voted to restore the sections to their original number of units.

The children's section adjourned on Thursday afternoon and came to the house in a body in order to demonstrate to the house how intensely they were interested in this matter. The reasons for giving them their original number of units were very ably presented by Dr. Abt. One objection to so many sections and the large number of papers that each section presented, was that it increased

the cost of publication and required such an immense amount of space in the Journal. This objection was met by the statement that many of the papers need not be referred to the Journal, but they could be published by their writers in other journals.

H. M. McClanahan,
Delegate from Children's Section.

Richardson County Plan for War Cooperation.
Falls City, Neb., July 11, 1917.

We, the undersigned, practitioners of Richardson county, Nebraska, hereby known as "Physicians' Unit of Richardson County," agree to adopt and to act in accordance with the resolution introduced by Dr. R. W. Fouts and passed by the House of Delegates of the Nebraska State Medical Association, May 9, 1917, entitled:

A Resolution of recommendations for county medical societies, providing for the care of the practice of physicians who absent themselves for military service; with the following modifications:

Provided, the secretary of the County Medical Society mentioned in the resolution may be any person whom this meeting may select.

The cards mentioned to be provided by the State Medical Association, to be supplied by the individual county organizations, according to the following form and must be of uniform size to admit of proper filing.

The following form to be used for cards:

This is to certify that Dr....., of....., is and has been my regular physician. On account of his absence for military service, I desire to make this declaration, that proper credit may be given him by his fellow practitioners who attend his patients, during his absence.

Signed.....

The following form letter may be mailed to each patient or family, with card enclosed, explaining the purpose of obtaining the signature to said card.

Dear M.....:

As a member of the Reserve Corps of the U. S. Army (Navy), I am soon to be called into active service by the government, and on that account I am writing you of this fact, so that, in case of illness you may summon some other doctor to attend you. In accordance with resolutions adopted by the physicians of Richardson county, Nebraska, the following physicians have agreed to attend my patients and I can heartily recommend them.

If you desire that I receive credit for work done

by attending physicians the same as if I were attending you or your family, kindly sign and return enclosed card at your earliest convenience.

Respectfully,

The cards after being signed must be filed with the person designated as secretary at this meeting, who will furnish a copy of each doctor's patients to his colleagues for their guidance.

At the first of each month, every physician shall furnish to the secretary a statement of the services rendered to absentee's patients, giving name of patient, date of settlement and amount collected, and shall remit one-third of that amount to the secretary, or voucher for the same. Same to be at absent physician's disposal.

The secretary must keep an accurate account, in a book for this purpose, each absent physician with a separate page, giving name of patient, also physician, with date and amount collected.

The statement of practicing physician will accompany remittance to absent physician or the one designated by him to receive it.

This contract is binding for the full period of the war.

A membership fee of One Dollar shall be charged each member.

C. P. Fordyce	W. E. Shook
O. F. Lang	G. G. Gandy
J. A. Waggener	Cowan & Cowan
Geo. W. Reneker	R. G. Henderson
M. L. Wilson	C. L. Hustead
A. J. Smith	Geo. W. Eggermayer
R. W. Fouts	Robert Hurka
H. D. Burchard	James F. Kelly
H. M. Harvey	W. R. Waggener
H. R. Miner	S. C. Doran
L. T. Petersen	Birdie D. McKilligan
A. W. Montgomery	L. L. Cornell

State Secretary's Column.

Announcement to County Society Officers.

The attention of County Society officers is called to our revised Constitution and By-Laws, Chap. XII, Section 1, as follows:

"An assessment of four dollars per capita on the membership of the component societies is hereby made the annual dues of this Association. The secretary of each county society shall forward its assessment, together with its roster of all officers and members, list of delegates, and list of non-affiliated physicians of the county to the secretary of this Association on or before December 31st of each year."

Our members await the initiative of our officials, whose duty is clearly and definitely stated in the

section quoted above. The mailing list of our Journal is made up each month from the records in the office of your state secretary, whose only guide is reports from county societies.

I suggest an early fall meeting—with banquet for your members and their wives—for the purpose of electing officers and collecting your 1918 dues.

Joseph M. Aikin, Secretary.

The 1918 Program.

To the members of the Nebraska State Medical Association, who desire a place on our 1918 official program:

Your request, with title of your paper and a brief abstract of it, should be in the possession of your program committee on or before January 1, 1918. This committee will meet January 3, 1918, to canvass the material offered, and formulate a preliminary scientific program. In compliance with instructions Chapter 8, Section 2, of our Constitution and By-laws, we shall endeavor to have the character and scope of the Scientific Proceedings of the Association, embody the most practical demands made by the majority in our membership.

Joseph M. Aikin, 468 Brandeis Bldg., Omaha, Chairman.

Surgical Section.

C. A. Roeder, 834 Brandeis Theatre Bldg., Omaha, Chairman.

J. S. Welch, 1st Nat'l. Bank Bldg., Lincoln, Sec'y.

Medical Section.

Wm. J. Douglas, Atkinson, Chairman.

B. W. Christie, 1st Nat'l. Bank Bldg., Omaha, Sec'y.

Change of Address.

Will county secretaries be kind enough to notify this office at once of any change of address on the part of any member?

We are frequently notified by postoffice authorities of the non-delivery of copies of the Journal and to this end we must have the cooperation of the member himself and the secretary of the county society.

Joseph M. Aikin, Secretary,
468 Brandeis Bldg., Omaha, Neb.

Our Library.

The Journal has inquirers asking for information on a variety of medical and public health questions. For the benefit of our membership we again call your attention to the library of The Nebraska State Medical Association. Dr. Wm. P. Wherry, 705 Brandeis Theatre Building, Omaha, Librarian, will gladly advise how you may quickly obtain, at minimum cost, a bibliography from the literature of many textbooks, and about eighty of the best current weekly, monthly and quarterly medical journals published.

COUNTY SOCIETY NOTES.

The doctors of Merrick county met in Central City, June 25th.

The Saline County Medical Association met in Friend, June 22d. Sixteen physicians were present representing Saline and Seward counties.

The Harlan County Medical Association met recently in Alma. The fee bill of the Republican Valley Medical Association was adopted making the charge for day calls \$2 with 75c per mile.

The Saunders County Medical Society met July 12 at the State Fisheries for a short business session and a real picnic. The next meeting will be held at Wahoo in October.

Mary A. Quincy, Secretary.

Burt County Medical Association held a meeting in Tekamah, June 5th. Dr. H. W. Benson of Oakland, president of the association, was chosen chairman of the Council of Defense, and a committee was appointed with a member from each town.

The Republican Valley Medical Association held the semi-annual meeting in Holdrege. The officers of the association are as follows: Dr. C. L. Fahnestock, president; Dr. J. K. Muldoon, Arapahoe, vice president; Dr. D. W. Shields, Holdrege, treasurer; Dr. L. W. Rork, secretary. Board of censors: Dr. P. A. Sundbury, Holdrege; Dr. D. J. Ried, McCook; Dr. J. N. Campbell, Stamford.

The Burt County Medical Society held its semi-annual meeting at Tekamah, June 5th. The status and needs of the Medical Officers' Reserve Corps were discussed at length. Three members of the society have applied for admission into the corps. They are as follows: Dr. H. A. Johnson, Tekamah; Dr. A. E. Westervelt, Craig; Dr. F. D. Ryder, Lyons.

Appointments on the committee on Red Cross Medical Work were made as follows: H. W. Benson, president; S. A. Swenson, secretary. Members ex-officio, M. L. Hildreth, A. D. Nesbit, Herbert Cooper.

It was decided to have a symposium on cancer at the next meeting.

The Elkhorn Valley Medical Society summer meeting was held at the Norfolk Country Club, Norfolk, Neb., on Tuesday, July 17, 1917. The visiting physicians played golf in the early morning. Dr. Jno. E. Summers, chairman of the Committee on Medical Defense, read a number of letters and commended the selective draft for physicians. The society endorsed that method to meet the demand for physicians needed in the army. Lunch and dinner were served at the Club House. A number of physicians came in their automobiles to attend the meeting.

Telegrams that they could not be present were received from Drs. Jonas and Lord. The midwinter meeting will be held at Fremont, Neb.

A. P. Overgaard, Secretary.

The Richardson County Medical Society met in Falls City, June 26th. Following is the program:

"Some Phases of Metabolism," by Dr. Cutter of Omaha.

"Summer Diseases of Children," Dr. E. R. Hays, Falls City.

"Chlorine in Asepsis," Dr. C. P. Fordyce, Falls City.

"Report of the State Society," Dr. Montgomery, Stella.

Following the meeting the members had dinner at the National Hotel.

Those present were: Drs. Hays, Miner, Harry Burchard, C. T. Burchard, Cowan, Reneker, Fordyce of Falls City; Dr. Fouts, Dawson; Dr. Hurka, Verdon; Will Waggoner, Humboldt; Montgomery and Edgemeyer, Stella and Dean I. S. Cutter of Omaha.

The Northwestern Nebraska Medical Society held its third annual session in Long Pine. Dr. G. O. Reng, the retiring president, delivered an address on the "County Doctor." Dr. B. M. Christie of Omaha read a paper on "Anterior Poliomyelitis;" Dr. W. H. Wightman of Omaha spoke on intestinal troubles illustrating his talk with charts. The next meeting will be held in October with J. M. Tische at Wood Lake.

The following officers were chosen: Dr. C. H. Root, Bassett, president; Dr. E. T. Wilson, O'Neill, vice president; Dr. J. M. Tische, Wood Lake, secretary; Dr. T. J. Lawson, treasurer.

The doctors were patriotic in that they pledged themselves that in case one of their number enlisted in the war, that the doctor taking over his practice should place one-third of the net proceeds derived from such practice in the hands of the society's secretary for the use of the absent one's family or give the same direct to the wife. The resolution was without a dissenting voice.

The University Hospital.

The University Hospital under the control of the Board of Regents of the University of Nebraska will open for patients on Monday, Sept. 3, 1917. This hospital will provide care for worthy sick who cannot afford a physician's fee and who have no funds with which to defray ordinary hospital charges. For the information of the profession the Regents Rules are published herewith.

The Hospital of the University of Nebraska at Omaha is not founded with the idea of receiving patients who are able to pay for special medical and surgical care.

Worthy sick except as hereinafter specified shall be admitted upon receipt by the hospital authorities of a written application, stating that the patient needs medical or surgical attention, and that he is unable to pay for professional services at the hospital. The application shall also state whether or not the patient is able to pay for board and nursing while in the hospital. The application must be signed by a physician legally qualified to practice in Nebraska and by either the County Attorney, County Judge, or one member of the Board of County Supervisors. In emergency cases the signature of a legally qualified physician only is required.

No member of the hospital staff shall under any

circumstances receive compensation for professional services from any hospital patient.

The admission of patients to the hospital will necessarily be limited to the number of unoccupied beds. If admission is desired by a patient from a district which already has its full quota at the hospital, admission may be granted by the hospital authorities only when in their judgment exceptional conditions so warrant.

The following diseases will not be treated at the hospital: Insanity, Epilepsy, Acute Contagious Diseases, Pulmonary Tuberculosis, and Leprosy.

The hospital authorities are empowered to refuse admission to such chronic cases as cannot in their estimation be benefited by hospital treatment. This power also applies to cases requiring institutional treatment and to such diseases as the hospital authorities may see fit, in the best interests of the public, to exclude.

Persons desiring to secure admission of patients to the hospital, should communicate by letter or telephone with the hospital superintendent and secure approval of the application for admission before sending patient to the hospital.

Patients must be accompanied by sufficient funds to enable them to reach the hospital and to provide for their return home.

Patients should come supplied with at least two nightgowns, one pair slippers, one bathrobe and an ample supply of handkerchiefs.

Patients shall be dismissed whenever in the judgment of the attending hospital physician it is not essential to their welfare that they remain in the hospital.

MILITARY NOTES.

Dr. C. A. Yoder of Elmcreek, Neb., has joined the Medical Corps of the Army.

Dr. Hibberd of Lodge Pole, has assumed the duties of army surgeon and has left for his post.

Dr. R. D. Bryson of Callaway has gone to Fort Riley for military service.

Dr. F. M. Barns of Albion, Neb., has passed the examinations for service in the Army.

Dr. John Buis of Pender has been commissioned a captain in the Medical Reserve Corps of the Army.

Dr. C. D. Eby of Leigh, has passed the examinations for the Army.

Dr. J. A. Peters of Louisville, Neb., has received his commission as first lieutenant in the Army.

Dr. J. W. Thomas of Nehawka will be attached to the Omaha Red Cross Ambulance Corps.

Dr. H. M. Fitzgibbon of Omaha has received his appointment as lieutenant in the Medical Reserve Corps of the Army.

Dr. F. J. Kotlar of Torrington, Wyoming, is visiting in Columbus. He has made application for admission to the Medical Officers' Reserve Corps.

Dr. U. S. Harrison of Neligh has received orders to report at Fort Riley, Kansas, not later than Aug-

ust 10th. Dr. Clements of Neligh is stationed at Fort Riley.

Dr. J. H. Boyes, head of the Blue Valley Hospital at Hebron, has received a commission as first lieutenant in the Medical Officers' Reserve Corps.

Dr. J. M. Curtis of Tecumseh has been appointed assistant medical examiner of the Johnson County Exemption Board, receiving his appointment from Governor Neville last week.

Dr. H. L. Wells of West Point has been ordered to Fort Riley, Kansas, where he will serve in the Medical Reserve Corps. Dr. Wells and his two sons have enlisted.

Dr. W. S. Evans of Columbus has been commissioned as Captain in the Medical Officers' Reserve Corps. Dr. W. R. Neumarker and Dr. C. H. Campbell of Columbus were previously commissioned to the same rank.

Dr. Thomas D. Boler, assistant city physician of Omaha, has resigned to join the medical branch of the army.

Dr. G. M. Andrews of Stella, Nebraska, has relieved his brother at Minden, Dr. H. S. Andrews having left for Fort Riley. Dr. W. H. Powell will succeed Dr. Andrews on the exemption board.

Dr. Edgar Cline of Auburn has received his commission as first lieutenant in the Medical Corps of the Army.

Dr. B. L. Shellhorn of Peru has been called for service in the Medical Corps of the Army and will report at Fort Douglas, Utah.

Dr. Robt. T. Jones of Edgar has been appointed a member of the medical reserves with the rank of first lieutenant.

Dr. Otis Martin of Central City has been appointed to a first lieutenantancy in the Medical Reserve Corps of the Army.

Dr. C. C. Johnson of Creighton has departed for Fort Riley, Kansas, to enter the training camp in the medical corps.

Drs. Little and Christie of Clarks have received their appointment to the Medical Reserve Corps of the Army.

Dr. P. R. Howard of North Bend, Neb., has been summoned to the Officers Reserve Camp at Fort Riley, Kansas. He has been appointed first lieutenant.

Dr. I. H. Dillon of Auburn, Neb., has joined the Medical Reserve Corps of the Army.

Three members of the Burt County Medical Association have volunteered for service in the army. They are Dr. F. D. Ryder of Lyons, Dr. H. Johnson of Tekamah and Dr. A. E. Westervelt of Craig.

Dr. L. M. Stearns and Dr. W. E. Rose of Kearney, Neb., have offered their services to the government.

Dr. Daniel Franklin, aurist and oculist, of Omaha, has been appointed first lieutenant in the Officers' Reserve Corps.

Dr. C. C. Wallingsford of Ogalalla, Neb., has received his commission as a physician in the Army with the rank of lieutenant.

Dr. Stanley Clements of Neligh, Neb., holds a commission as captain in the Officers' Reserve Corps and expects to report at Ft. Riley soon.

Dr. L. Stark of Hartington, first lieutenant in the Medical Reserve Corps, will leave soon to assume his duties in the Army.

Dr. J. C. Painter and Dr. F. G. Kolouch of Schuyler, Neb., have taken the examinations for service in the Medical Reserve Corps of the Army.

Dr. J. E. Trierweiler of Hartington has received a commission as lieutenant in the Iowa Field Hospital Corps and is in camp at Woodland Park, Sioux City.

Dr. James M. Woodard of Aurora has successfully passed the examinations for service in the army and has been called to Washington.

Dr. H. W. Orr of Lincoln who sailed for England several weeks ago is at the Welsh Metrooplitan War Hospital, Whitchurch, near Cardiff, Wales.

Drs. W. R. Boyer, E. B. Brocks and J. C. Waddell of Pawnee City, Dr. W. L. Johnson of Steinauer and Dr. L. D. Harman of Table Rock have received orders to report for examinations for the Medical Reserve Corps of the Army.

Dr. R. W. Fouts of Dawson, president of the Richardson County Medical Association, has received a commission in the Medical Reserve Corps of the Army. Before leaving Dr. Fouts called a meeting of physicians at Falls City to formulate plans for the care of patients left by physicians going to war.

Dr. J. A. Henske of Omaha has received his commission as Captain in the Medical Reserve Corps and has been ordered to Fort Douglas, Wyoming.

Dr. Ralph S. Hart who recently received his commission as lieutenant has gone to Deming, New Mexico, where he will have charge of the sanitation at the Deming Concentration Camp. Dr. Hart is a graduate of Creighton University.

The following Nebraska physicians have been appointed to the Medical Corps of the Nebraska National Guard: Dr. Marion T. Sigler, Pickarel; Dr. Joseph M. Carter, Tecumseh; Dr. B. R. McGrath, Grand Island; Dr. R. P. Hoxsey, Red Cloud; Dr. Willis E. Tablot, Broken Bow.

Dr. Elmer S. Tenney, health commissioner of the state under the new law, who was recently appointed to fill the vacancy caused by the resignation of the former health commissioner, has received a commission from the president of the United States appointing him major in the medical section of the War Department. This will not take him away from his present duties unless the call becomes urgent.

County Society Secretaries will confer a favor if they will supply the editor of The Journal with notes covering military activities of their members.—Ed.

NOTES.

Dr. Charles Ulrich will locate at Valentine, Neb.

Dr. R. C. Panter of Crete has been doing post graduate work in the east.

Dr. E. A. Pickens of Benkleman has been doing post graduate work at Harvard University.

Dr. F. A. Lemar of Humphrey returned from New York where he has been doing special work.

Dr. J. M. Neely celebrated his twenty-first anniversary as a practicing physician in Elmwood.

The state health board has revoked the license to practice medicine of Dr. I. H. Phillips of Seneca.

Dr. E. R. Hayes of Falls City has been doing special work in the Children's Hospital in New York City.

Dr. E. T. Manning of Omaha will have charge of the medical inspection in Omaha public schools for the coming year.

Dr. L. A. Dermody has been appointed by the City Council of Omaha to succeed Dr. T. D. Boler as assistant city physician.

Dr. J. P. Flory of Pawnee City has returned from San Francisco where he has served a year's internship and will locate in Genoa.

Dr. W. N. Phillips of Bartley has been appointed assistant surgeon at the Norfolk Hospital for the Insane, to succeed Dr. Foster, who resigned to enter the general practice of medicine.

Dr. E. W. Cook who for the past ten years has been physician of the Modern Woodmen of America for Nebraska was appointed head physician of the entire order and will remove from Plattsmouth to Rock Island, Illinois.

This, with the first laboratory and the state hospital, will make three state buildings in the group, besides the privately owned chapter house of the students' and professors' Greek letter fraternity just outside the state property.

Dr. L. D. Rustin of Boston, appointed chief health commissioner under the new state law, has resigned and Dr. E. S. Tenney, a graduate of Harvard Medical College, has been appointed in his place. Dr. Rustin has accepted a similar position in Maine.

The new Nebraska Board of Health has made the following appointments: Dr. E. S. Tenney, Boston, health commissioner; Dr. William Wild, Lincoln, Epidemiologist; Mrs. Louise Andrews, Kearney, statistician; H. P. Letton, Lincoln, sanitary engineer; Loraine Follette, May F. Hyland, Edna Kelley and Ruth Steyer, clerks.

Plans for the second laboratory building at the college of medicine, University of Nebraska, Omaha, Forty-second and Dewey avenue, are being drawn by John Latenser & Sons, to whom the award was made the other day. For this structure the state has appropriated \$110,000. The building will be 101 x 101 feet, four stories high and largely a duplicate of the first laboratory. Both will be required to care for the students. They will double the teaching facilities.

NECROLOGY.

Dr. J. B. Sumner of Hildreth died June 27, 1917, in Bloomington. He was one of the oldest residents of Franklin county.

Dr. Homer F. Fort who died in Omaha was buried at Dickens, Nebraska, July 2, 1917. Dr. Fort was born in Troy, N. Y., and graduated from the Omaha Medical College in 1888.

Dr. A. J. Kearns of Loup City died at his home June 15, 1917. He leaves a wife and two sons. Dr. Kearns has been a member of the Loup Valley Medical Society since 1887. He was a member of the National Association of Railway Surgeons; the American Medical Association and the Nebraska Medical Society.

MARRIAGES.

Miss Louise Sabin and Dr. F. W. Buckley of Beatrice were married May 23, 1917. They will reside in Beatrice.

Miss Sylvia A. Butts of Council Bluffs, Iowa, and Dr. A. S. Von Mansfelde of Ashland, Nebraska, were married in Lincoln. Dr. Von Mansfelde was for several years treasurer of the Nebraska State Medical Society and is well known over the state.

Announcements have been received of the marriage of Miss Megan Myfanwy and Dr. John Goodnough at Rock Springs, Wyoming. Dr. Goodnough is a graduate of the University of Nebraska College of Medicine.

Announcement has been received of the marriage of Miss Ethel Potter of Gothenburg to Dr. Orville D. Johnson on July 19th. They will reside in Brady, Nebraska.

Miss Florinda Young of Macedonia, Iowa, and Dr. George Pratt of Omaha, were married June 16th.

Miss Mary Alice Carter and Dr. Sanford R. Gifford of Omaha were married July 11th.

The wedding of Miss Henrietta Wadsworth and Dr. James F. Kelly of Dawson, Nebraska, took place July 9th.

Captain Milan S. Moore, Company M, Fifth Nebraska Infantry, and Mrs. Catherine W. Foley, both of Gothenburg, were married recently.

Communications.

Editor of the Nebraska State Medical Journal:

In your editorial in the June number of the Journal on "Our Membership," you lamented the fact that more of the physicians of the state do not belong to their respective county societies and the State Association. If the fact that only about 55% of the physicians belong, is to be lamented then the question naturally arises why do they not belong? Is the fault theirs or is it the fault of the county societies? If it is their duty to belong and if they have been given a chance to belong then to use a modern term they are "slackers," but if they are entitled to be members and have not been given a chance to become members some one else is to blame. Again if they are entitled to belong and denied admission by what term are you going to designate those who are responsible for their not being members? Something worse than "slackers" will have to be used, perhaps "traitors" to the profession would

be the proper name. Personally I am slow to believe that nearly 45% of the physicians of the state are not members, when it is to their interest and to the best interest of the profession at large for them to belong without some definite reason. It certainly speaks bad for the profession of the state at large for such a condition to exist. Physicians are just human beings, so much so that once in a while you can actually find one who is jealous of some of his conferees. What I want to emphasize is this, that they are influenced by the same motives and by the same impulses that influence other classes of people. I believe as a class their sense of duty is high and if so, and it is their duty to belong to their respective societies then the question becomes all the more pertinent why do they not belong? To find an answer to this question it will be necessary to look into the condition of some of the county societies and it might not be amiss to take a look in the State Association.

That the Douglas-Sarpy county society has a membership of two hundred sixty-nine with only five ethical physicians who have not affiliated with the society speaks well for the society and also speaks well for the leaders of the profession in these two counties, for it means simply this, that the physicians of those two counties have not been given to understand that they are not wanted. But how about some of the other counties in the state? If you will take a little time you can easily find counties where the opposite conditions exist. The writer can easily refer you to one county in the southeastern part of the state where at least one-fourth of the physicians do not belong and that is not all, they are given to understand that they are not wanted. Why are they not wanted? Because one or two men could not run the society with a larger membership. Eight of the physicians of that county had a petition to the State Association in 1916 asking for a reorganization of the county society and five of them were there to present and to argue their case before the House of Delegates or the Board of Councilors, but were they given a chance? No. The matter was "settled" (?) outside by the county society agreeing to take in all of the petitioners who were not members. But did the society fulfill their part of the agreement? No. The last news I had from them was to the effect that one had been taken in and one rejected, the others evidently too much disgusted to apply. This is a case of too much politics. The Board of Censors of the county referred to had an agreement that if an applicant was "persona non grata" to one member of the Board then the other members would not favor his admission. The writer asked a prominent member of the Board of Councilors if one member of the Board of Censors could prevent an applicant from becoming a member and he replied that he could. That would indeed be "Kaiserism" at home or rather in the medical societies. However, this view of one man rule in the Board of Censors did not meet with the approval of the Councilor from the district in which the county referred to above was located. Now is it any wonder that only a little over forty-five per cent of the physicians outside of the Douglas-Sarpy society belong to the different county societies?

I believe that when Dr. Rowe was president of

the State Association he made an effort to do away with this petty jealousy that was keeping out members in some of the county societies but either his effort was not strong enough or was not followed up enough to accomplish results.

Another thing to be considered if you really want to increase the number of your members and that is the large number of "Eclectics" in the state, many of whom do not belong. Some of them do not care to belong but some are denied admission and others are given the cold shoulder. This is wrong for it should be no concern of ours whether a man wanted to prescribe calomel or podophyllin, foxglove or cactus so long as he does not advertise the fact. Even if he did advertise, to my mind that would be a small matter—too small for men who are broad enough to practice medicine—to consider.

As to the question I asked in the first part of this letter, why do they not belong? To my mind there are three real reasons. First, personal and petty jealousy; second, too much politics in some of the county societies and in the State Association; third, the non-members do not appreciate the advantages of being members of their county society and of the State Association.

As to remedies I will just venture these suggestions on account of space. That the county societies be held more strictly accountable to the State Association. When a member of a county society be found guilty of barring or attempting to bar the admission of another physician out of petty jealousy this member be suspended for a definite time. And last do away as far as possible with politics in the State Association so that when a physician went home from a state meeting he would have the feeling that he attended a fraternal meeting and not a political meeting.

Respectfully submitted,

E. I. Whitehead, M. D.

Holdrege, Neb., July 6th, 1917.

ABSTRACTS.

In the Journal of Nervous and Mental Diseases, June 19, 1917, Egbert W. Fell, M. D., physician, Elgin State Hospital, Ills., writes lucidly on Wassermann Reaction in 1,266 consecutive admissions to Elgin State Hospital. He quotes other reports in which similar conditions for experimentation were obtained. For our clinical use, we print his

Summary and Conclusions.

Of 1,266 consecutive admissions to Elgin State Hospital 15.7 percent gave distinctly positively serum Wassermann reactions. Of the 664 males 22.3 percent were positive, of the 602 females 8.5 percent were positive.

Including positive spinal fluids in cases showing a negative serum the percents are somewhat higher,

male 23.3 per cent, female 8.8 per cent, total 16.4 per cent.

Of the 148 males with positive serum 120 belonged to the syphilitic psychoses. Of the 51 females 26 belonged to this group.

Excluding the syphilitic group of psychoses only 5.2 per cent of male, 4.4 per cent of female, and 4.8 per cent of total admissions gave positive serum Wassermann reactions.

A high per cent of positives was found in none of the other large groups except chronic morphinism where in a total of 65 cases 24.6 per cent were positive. The explanation is offered that most of the morphine addicts are of a class likely to contract syphilis—more so than our general population.

Of the 1,266 cases 161 belonged to the syphilitic group of psychoses, 131 male and 31 female. Of these, 91.6 per cent of males, 86.6 per cent of females and 90.68 per cent of the total had positive serum Wassermann.

Fluid Wassermann tests were done on 372 of the cases. Excluding paresis it was done on 211 cases and in none of these was the test positive.

Of paresis proper, 96 per cent had positive fluid, of the whole syphilitic group, 93.8 per cent.

In the syphilitic group 3.7 per cent had both the serum and fluid negative and 88.2 per cent had both the serum and fluid positive.

In the differentiation of cases in insane hospital work we find the following to be practical working rules:

1. A positive serum Wassermann usually indicates paresis, especially in males.
2. A negative serum does not exclude paresis.
3. A positive fluid Wassermann practically always indicates paresis.
4. A negative fluid practically excludes paresis.
5. A positive fluid Wassermann is by far the sign most constantly present in paresis and constantly absent in other psychoses, which fact makes the laboratory findings more reliable criteria for diagnosis in doubtful organic cases, than uncertain clinical signs.

The mistake is more likely to be made clinically of calling a case paresis when it is not, than of calling paresis something else. An organic case with physical and mental findings uncertain, but suggesting paresis, which on examination of the spinal fluid shows a negative Wassermann is very much more likely to prove not to have a syphilitic involvement of the cerebro-spinal axis.

J. M. A.

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The Symptom Complex and Treatment of Anterior-Poliomyelitis.

B. W. Christie, M. D., Omaha.

Charcot describes this disease as an involvement of the ganglion cells of the anterior horns of the grey matter of the cord; this is as we know now a very small part of the story. To correctly understand this dreaded disease we must more fully describe and define it. The term anterior-poliomyelitis is a misnomer; it is an acute infectious disease which may or may not involve certain parts of the general nervous structures, causing certain marked pictures and there stop or may go on to involve the whole cerebro-spinal axis. Practically all of the organs of the body are involved. This has been demonstrated both by autopsy and by experiments. Solutions of the different parts of the anatomy, i. e. gastric intestinal tract, liver, spleen,

lungs and lymphatic glands have caused in monkeys the symptom complex of this terrible disease.

I will not dwell upon the bacteriological aetiology of infantile paralysis but as it is in its first phases, will state that it promises much light. Nor in this brief paper will I have more than time to mention that prophylaxis is perhaps the most important feature to be considered under treatment. But in passing I will state that by our following description of the symptom complex and of treatment you will necessarily get a better understanding of the fundamental importance of prevention.

Before branching into generalization let us in a brief manner take it up in text book style and then farther amplify from our brief experience.

The period of incubation is subject to wide limits of fluctuation, varying from two days to even longer than two weeks; the usual time being eight days.

The pre-paralytic stage after onset of disease varies from twenty-four hours to twelve days. The period of infectivity from clinical experience is judged to last no longer than five weeks, so that six weeks is given as length of time to quarantine. This is of course, the minimum length and there are instances of exception from this period, in that in some peculiar types the quarantine period should be lengthened.

Observations upon both monkeys and humans prove that one attack furnishes future immunity, although it is to be supposed that there will be certain occasional exceptions to this rule. It is of passing note to record that cases in the polio wards that were exposed to other infectious diseases as scarlet fever, measles, diphtheria, etc., did not develop any such infection. The infantile paralysis seemed to give at least a passing immunity against these diseases and older writers were wont to lay emphasis upon the immunity most children possess to this scourge. This was not true in the New York epidemic, as it was the healthy children that were attacked.

For the purpose of description and a better understanding we will tell of the different types.

First, an axiom; the reflexes were lost before motion. The first or abortive type. We find the sufferer complaining of headache and malaise, then fever. Convulsions and vomiting not as common as ordinarily supposed, in fact quite rare. May be slight stupor with diminished or increased reflexes. Pain usually present over spine and neck, may be general over body as shown in child's objection to be moved or by its crying on being touched. There is liable to be abdominal pain. You usually have a positive Macewen. In this type there is no paralysis following.

The second or bulbo spinal type shows the same symptom complex only more aggravated, especially the restlessness and constipation and enuresis or even retention so that a catheter has to be used. This type is always followed by paralysis, though may have comparatively no premonitory symptoms to the paralysis. There is almost al-

ways flacid paralysis of adductors of thigh and anterior neck muscles. The color of the throat and tongue is that of a cyanosis.

The third class may be called the meningitic or cerebral type, in which there is headache, stupor, high fever, vomiting and generally rigid neck. Pain on flexion of head, a positive Brudzinski, a Kernig and MacEwen are most always present together with possible strabismus, ataxia, optic neuritis or even hemorrhage into the retina. It is to be remembered concerning the characteristic nervous reflex signs that they come and go, that a Kernig will not always be positive but at times it is and at times it is not. The reflexes are of high diagnostic importance before the paralysis but repeated tests have to be made.

In the true bulbar type we have the worst class where we have the centers of deglutition and respiration attacked with all the attending evils thereon. Most of these cases are, of course, fatal.

This will suffice for our text book classification; now allow me to amplify in a very general manner. There may be duplication of my statements as a consequence but I hope my ideas and what I learned of polio will probably get to you quicker. The following deals more particularly with the anterior poliomyelitis of the New York epidemic of 1916.

Symptoms: Child stupid, restless at times, cross, irritable, rarely vomits or has a convulsion. Loss of reflexes comes before loss of motion. Most of these cases show a flaccid paralysis; the exceptional cases are of the meningeal type displaying varying degrees of involvement. Other cases want to be left alone; they have pain on moving. There is present a poliomyelitis in various degrees of intensity and involving more or less nervous tissue. There is generally pain along spine, detected by pressure. Macewen's sign is present in a majority of these cases, percussions over lateral sinuses gives a tympanitic note showing fluid present. These children rarely cry except on handling. They merely wish to be left alone and they have various degrees of hyperpyrexia, nothing characteristic, however, about the temperature curve. I noticed some where the temperature curve was represented by almost a straight horizontal line going across the chart, temperature remaining at about even

100 or 101 or 102 for several days. The length of time of the acute condition varies from seven to eight days to three or four weeks, the latter cases being the exceptional ones in the big wards. The pulse is accelerated. The respirations vary greatly, the characteristic jerky respiration dependent upon highness of involvement, is or is not present. These cases appear like pneumonia, the alae nasi are dilated but the respiration is merely jerky and shallow and the cheeks are purplish cyanotic, not the red cheeks of an early pneumonia. Their throats and tongues are injected with purplish tinge; they look almost like they had been eating huckleberries. The involvement of the respiration may be partial involvement of the phrenic nerve so that they use abdominal respiration almost entirely; also intercostal muscles may be partially or entirely gone. In some the voice or muscles of deglutition may be involved; this makes feeding a difficult problem. Most of the children are perfectly quiet unless aroused and then they cry or remonstrate because of handling. In some the pain seems to be merely over the affected part, while in others the pain is in other parts as well. Some cases, that are the exception, show a spastic condition of the parts affected, these cases are various modifications of the meningeal types. Most all cases show a partial or complete flaccid paralysis of the anterior muscles of the neck so that the head will drop backward upon raising. There is present in a great majority of these cases a partial flaccid paralysis of the adductor muscles of the thigh.

Reflexes are lost before paralysis comes; reflexes return in affected part before motion is recovered. Boys over nine or ten seem to make more complete recovery than any other class of cases. All cases die from bulbar paralysis, respiratory failure, cardiac failure or vaso-motor failure. Some of course, die because of complications, because of the incomplete action of the lungs in the severe type where there is partial involvement of the phrenic nerve and intercostal muscles, here we are apt to have a pneumonia which may kill. During August in over 5,000 cases there were over 1,000 deaths. These children were all of the healthy, large husky appearing children, the frail or marasmic type was the exception so that this disease is particularly prone to attack large, healthy children. Any minimizing of the seriousness of this attack or epidemic is foolish. Think of

the terrible aftermath. Another peculiarity is that it gives some immunity to other infectious or contagious diseases; cases of scarlet fever and diphtheria have broken out in the polio wards but did not need to be isolated because none of the others developed it; this is vastly different from other infectious and contagious disease.

Treatment.

I will not dwell upon the details of symptomatic treatment. You are well acquainted with the need of fresh air, sunlight, quiet, rest in bed and correction of constipation, together with the retention of urine which so many times occur. These are all matters of common sense, hygiene and general medical knowledge, the successful application of which may be the deciding factor in the case. Neither will I dwell upon the orthopedic appliances used in these cases during the acute stages for the quieting of pain and the arrest of deformity. The after care and correction of the residual paralysis of these cases is too technical and too exhaustive for me to treat of in this short paper.

But we will take up the attempts at more or less specific treatment. The most available and easiest remedy to use that has been recommended is urotropin. Hexamethylamine does not act except in an acid media as it breaks up into its antiseptic units only in acid preponderance. It therefore, would have no action upon this disease except in correcting some of the urinary symptoms. After death is the only time the spinal fluid is acid in reaction. Therefore, except from an empirical clinical standpoint urotropin has no place in treatment.

Adrenelin chloride 1-2 cc. of 1-10,000 solution was used every four hours or 6-8 cc. of same solution twice a day. After spinal puncture and withdrawal of spinal fluid the adrenalin chloride was injected into the spinal canal. The theory was that by its astringent action it prevented the involvement of structures higher up. The action of adrenalin, however, is so evanescent that personally I could not see its justification and I do not think the clinical results proved its efficacy. It was the treatment advocated by the New York Board of Health so that we had abundant opportunity to judge of its value as it was so generally used.

Normal blood serum was used in the spinal

canal after withdrawal of the spinal fluid. From 5-30 cc. were introduced by this method but clinical results did not justify its use. Horse serum 18-30 cc. was also used in a similar manner with similar results. Auto-inoculation, that is the injection of some of the spinal fluid drawn from the spinal canal into the buttocks was used but with no appreciable results. The justification for these methods of treatment was that they stimulated the formation of anti-bodies and in this way would mitigate the disease.

Serum drawn from immunized patients, those who had had polio, was used intramuscularly, intravenously and intra-spinaly with very appreciable results. But of course this method of treating this terrible scourge is impracticable in large epidemics as it is impossible to get enough people that have had infantile paralysis. There was only enough such serum to treat a few cases. 5-30 cc. was used as indicated by the severity of cases. These cases did well, especially when such a serum was used early. A combination of this method of treatment and the adrenalin chloride treatment was used in some cases and of course the results were hard to interpret.

Before speaking of the most available and the one remedial measure that gave good clinical results I cannot refrain from speaking of the use of hypersotonic salt solution. This is, of course, merely symptomatic but it did wonders in some cases, using 30 cc. at a time intravenously, in relieving the toxæmia. The one method that universally made appreciable difference was the frequent use of spinal punctures. The withdrawal of the excess of spinal fluid at repeated intervals undoubtedly saved a number of the little sufferers.

At present some work has been done experimentally in developing an immunized horse serum which was used upon monkeys. This has been since the discovery of the bacteriological etiology. This serum has been used successfully with monkeys as a preventive but has not as yet demonstrated its clinical use. The acid proof of extensive clinical application will have to prove its worth.

Cholecystostomy.*

B. R. McGrath, M. D., Grand Island.

Since the beginning of gall bladder surgery sixty years ago, with simple incision of abscesses in the gall bladder region for evacuation of pus and stones, progress to our present complex operations on the gall bladder and ducts has been steady and rapid. Progress in diagnosis has kept pace with progress in treatment. Diagnosis in the majority of gall-bladder cases seems so simple now that it appears almost incredible that a few years ago the presence of gall stones was only recognized when some of the stones were found in the stools. The elimination of jaundice from the essential symptoms of gall bladder disease, and from the essential symptoms of stone in the common duct, even; and the recognition of gall bladder disease without stones were great steps toward a correct understanding of the true nature of the trouble. This took us away from ideas of a disease of chemical origin and of purely mechanical manifestations and put us in line for understanding the condition as an infection.

Stones may develop, Bevan states, through purely chemical action, though practically always from infection. Murphy says "remember all gall stones are the sequence of an infection." Stones develop in the presence of infection, or we have a gall bladder infection with or without stones. Recognition of infection as the essential part of the disease has established the treatment as surgical treatment of a local infection, and has established surgery of the bile system on its present satisfactory basis. In our enthusiasm for elimination of all foci of infection there is a tendency to make the treatment more radical and possibly to destroy certain functions and to increase the patient's risk without sufficient compensation.

It must be remembered in all gall bladder surgery that the gall bladder is not a functionless organ. Under normal conditions it is said to fill and empty synchronously with the peristaltic movements of the intestine like a bulb syringe. When the duodenum is distended, pressure on the obliquely entering duct in the duodenal wall, shuts off the outlet and the surplus bile passes into the elastic gall bladder until the pressure is relieved.

*Read before the Nebraska State Medical Association, Lincoln, May, 1917.

The addition of mucus to the bile is almost entirely from mucous glands of the gall bladder. After cholecystectomy nature seems to make an effort to compensate for the absence of a gall bladder. The ducts enlarge to many times their former size and the pressure of the bile is reduced to a small part of the previous pressure. Judd states that these results are brought about by a reduction of pressure resistance of the sphincter at the outlet of the common duct.

The possible modes of infection of the gall bladder and ducts are (1) by direct extension along mucous surfaces, (2) by lymphatic channels, (3) by the blood stream (a) through the portal system or (b) through the hepatic system. Rosenow produced gall bladder infections in 68% of animals subjected to intravenous injections of cultures made from tissues of gall bladders removed, demonstrating that infection does occur in this way very readily when bacteria are present in the blood that have a selective tendency to development in gall bladder tissues. If this is the most common mode of infection as seems probable, the surgeon's duty does not end with simply clearing infection from the gall bladder, but there must be added a careful search for the source of infection in the blood stream, and treatment of this condition to avoid reinfection after careful drainage. To thoroughly drain a gall bladder and leave the focus of infection in tonsils, teeth, appendix, kidneys or ears without treatment is no more scientific than to thoroughly cleanse the reservoir of a city's water system and then leave a sewer emptying into the supply above. Reinfection no doubt accounts for many cases of recurrence after drainage.

Because of the probability that gall bladder infection is of hematogenous origin and involves not only mucous membrane but deeper structures of the bladder wall, it does not necessarily follow that the gall bladder must be sacrificed to clear up the infection. It is essential to the cure of these cases by drainage that continuous drainage may be maintained. Drainage through the abdominal wall restores the balance, but cannot be successful if there is a stricture in the cystic duct or an obstruction in the common duct. The following case, given because it represents a type of serious infection, illustrates these points:

Mr. S., a locomotive engineer was seen on the afternoon of Sept. 19, 1913, suffering

from what appeared to be a severe attack of gall bladder colic. Pain in epigastrium was paroxysmal and radiated under the right shoulder blade. Slight chilling. Temperature 102, pulse 120. At 5 p. m. the patient had experienced several hard chills; temperature had risen to 104, pulse 150, leucocyte count 20,000. Just before the beginning of operation, a short time later, temperature 105; pulse 160.

The following is the history of the case: For many years there had been attacks of gall bladder colic and digestive troubles. Four years before the attack mentioned above, he had an operation in Omaha, when stones were removed from the gall bladder and the bladder drained. One month after this operation attacks began again and recurred at intervals with gradually increasing severity. The attacks were accompanied by chills and fever.

The operation was made somewhat difficult by dense adhesions about the gall bladder and ducts. Four stones were removed from the gall bladder and one from the common duct. The gall bladder was gray in color. The gall bladder was again drained at this operation and a drainage tube passed down to the incision in the common duct.

Recovery following the operation was rapid and the patient has had absolutely no gall bladder symptoms since.

The essential for a cure of the infection in this case, was a restoration of continuous drainage through the ducts.

The results of cholecystectomy mentioned by Judd; first, dilated common duct; second, reduced pressure and relative stasis of bile in the ducts; third, dilated sphincter at the outlet of the common duct, make what would seem an ideal condition for infection and formation of stone in the common duct. Some operators have reported stone in the common duct more frequent after removal of the gall bladder.

It would seem at least that the attitude of the surgeon at present should be one of "watchful waiting."

The indication for cholecystectomy given by Alexander Bryan Johnson are permanent closure of the cystic duct and functionless gall bladder; stone impacted in the cystic duct; chronic inflammation of the gall bladder, the so called "strawberry gall bladder;" dense, hard, inflammatory thickening of the gall bladder; atrophied gall bladder; cancer

of the gall bladder; total gangrene of the gall bladder. Cases of stone impaction in the cystic duct require treatment by removal of the gall bladder because of a probable stenosis of the duct following. Drainage in these cases of stricture and probable stricture will result in fistula. "Strawberry gall bladder," hard inflammatory thickening, atrophied gall bladder, and total gangrene may be classed together under very serious infection destroying the functions of the organ. Then we have these indications for gall bladder removal:

1. Stricture and probable stricture of the cystic duct.
2. Serious forms of infection destroying function.
3. Malignancy.

But it cannot be admitted that in all of these conditions drainage must be excluded from consideration. Murphy describes the successful treatment of an old man with a chronic infection of the gall bladder with periodical attacks of severe chills and high temperatures, by drainage, when the gall bladder was so atrophied that its size would not admit a tube. The gall bladder was split and sutured around the drainage tube.

Just which of the infected gall bladders should be drained and which should be removed is a matter for decision by careful weighing of conditions at the time of operation, but I think we may safely say drainage should still be the operation of choice in the great majority of gall bladder infections. Most serious forms of infection with acute symptoms should be drained because of less risk, leaving the question of whether cholecystectomy may be necessary, for later decision.

Only the cases in which the gall bladder will be useless and a menace to the patient's health should have cholecystectomy performed. These are:

Strawberry gall bladder, very thick, calcareous walled, or hard walled gall bladder; total gangrene.

These with the cases of cystic duct stricture and malignancy are the indications for removal. Excluding these from considera-

tion for drainage, we have left the great majority of gall stones cases. Cases of stone in the common duct should have gall bladder drainage whether or not stones are present in the gall bladder. Pancreatic infections, according to Dr. C. L. Mix, 97% of cases of glycosuria occurring after the age of forty are due to pancreatic disease and a very large part of these are secondary to gall bladder infections. All cases of late development of glycosuria should be considered probable cases of gall bladder infection and when any symptoms of gall bladder trouble are found the gall bladder should be drained.

Dr. V. A. LaPenta in a recent article states: It would be unwise, to sacrifice a curable gall bladder for the following reasons:

1. The patient may in the course of his lifetime develop a biliary cirrhosis, which as it has been demonstrated, is immensely benefited by biliary drainage.

2. A malignant process of the head of the pancreas or stomach may develop later in life, causing common duct obstruction, which can only be relieved by anastomosing the gall bladder into the duodenum or jejunum. And how can anyone be certain that a patient may not later in life develop a chronic interstitial pancreatitis, and with the gall bladder already removed, be thus deprived of the benefits of biliary drainage, which have been proved to be so very satisfactory in this affection?"

It is not necessary to say much on technic of the operation. The form of operation that gives good drainage and leaves the parts with the least distortion and adhesions gives the best results. This is accomplished we believe best without attachment of the gall bladder to the abdominal wall, and by tightly surrounding the tube by a double purse string and inverting the fundus around the tube.

In conclusion: first, the gall bladder has a function and should be saved when possible; second, changes, the effects of which are not fully determined, take place after removal of the gall bladder; third, drainage and continued drainage through open ducts is a scientific and successful mode of treatment for gall bladder infection.

Cholecystectomy.*

A. F. Jonas, M. D., Omaha.

Langenbuch published the first case of cholecystectomy in the *Berliner Klinische Wochenschrift* in 1882, No. 48, and described two further cases before the German Surgical Congress in 1883, in which he had tested his new operation.

He stated that it was well known that gall-stone disease may disappear spontaneously or is relieved medicinally, but, in a certain proportion of cases may become chronic and lead to continued severe distress and often becomes a source of danger to the carrier. Stone formation does not cease, the irritation of the gall bladder persists, the muscularis at first, becomes hypertrophic, then in consequence of the chronic inflammation atrophic. Its expulsive power becomes diminished, in consequence the stones remain longer and become larger. Finally their passage becomes impossible and the inflamed bladder becomes atrophied around the concretions and presses them together. In other cases the calculi produce and maintain an ulcerative process leading to perforation with ensuing peritonitis and death. Chronic gall-stone disease must always be regarded as an insidious affection and in his opinion, all cases that are not relieved by medical treatment, must be subjected to surgical intervention.

Regarding the technique, he advised that aside from gallstone disease, cholecystectomy is the operation of choice in hydrops and empyema of the gallbladder and that henceforth he would separate the gallbladder beginning at the fundus and then tie the cystic duct and artery, then remove the bladder. He insisted that the gallbladder was not to be extirpated "because it contained stones but because it formed stones." The first public presentation of this new procedure was by Langenbuch in 1883 before the German Surgical Congress and while there was no discussion at the time, the method met with general criticism by the surgical world. The first noted defender of cholecystectomy was Courvoisier of Basel eight years later. The critics based their objections on anatomic difficulties and physiological grounds. Chief among those of the apponants was Lawson Tait. The latter was a warm defender of cholecystostomy. His eminence, as the

greatest laparatomist of his time, gave the greatest impetus to simple drainage and greatly retarded the acceptance of the more radical procedure, i. e. removal of the gall bladder for disease. He characterized the operation "as absurd," as "radically absurd" and finally as "intrinsically absurd." He stated repeatedly that it was absurd to remove the gallbladder simply because it contained stones, while Langenbuch, from the beginning, insisted that he extirpated the organ because it produced calculi. Tait maintained that stones were not formed in the gall bladder and they did not constitute a disease of the bladder, it was his opinion that calculi were formed in the liver and arrived in the gallbladder as small particles where they became enlarged, that cystectomy was contra-indicated because these biliary particles would be retained in and became enlarged in the common duct. He seemed to overlook the fact that simple drainage would not stop biliary stone formation in the liver even if his contentions were true.

Tait further insisted that cystectomy could not be carried out in cases where there was suppuration, ulceration and other severe diseases of the gallbladder. In such cases the operation was absolutely impossible. Again time has demonstrated that with an improved technique, these operations are not only possible but may be done with comparative safety. Many operators among which were Berneys, Stauff and Bardenheuer warned against cystectomies on account of the danger from uncontrollable hemorrhage and the difficulties of separating firm adhesions which often bound the bladder to the duodenum, liver and other surrounding structures. These dangers were magnified and did much to discourage others. However in the light of later experience especially by a better understanding of the underlying pathology and a better knowledge of the anatomy, especially a more exact ligation of the cystic artery and an avoidance of injuries to the common duct, the operation has gained favor to such an extent that trained operators are not so apprehensive as their predecessors. Recent statistics have shown that the mortality has decreased from 16% twenty years ago to 2/3% at the present time.

When we consider the sequelae of cystostomy, viz., recurrence of gallbladder disease, permanent mucous and biliary fistulae, requiring secondary operations of various kinds,

*Read before the Nebraska State Medical Association, Lincoln, May, 1917.

we must confess that cystectomy is the less dangerous operation of the two.

The gallbladder has been regarded by some surgeons as an organ of little physiological importance. That it is an organ of little comfort and may be a factor for much distress to the possessor. It has served as a means for profound study and brilliant surgical achievement. It has been described as a relatively thin walled, pear shaped, hollow organ with a length of 8-10 centimeters, posteriorly attached by a fairly firm connective tissue in a groove to the posterior surface of the liver and is recognized by its greenish translucence. It is distinctly differentiated from the other hollow viscera. It communicates with the largest glandular organ of the body by means of a duct, permitting an escape of a physiological excretion or secretion, which is not yet definitely understood. The bladder is concealed under the liver in such a manner that it is not always easily accessible. Its fundus reaches only slightly below the liver margin behind the 9th or 10th costo-chondral junction. Laterally it reaches to about one to two and one-half centimeters to the outer margin of the right rectus, and in a normal individual is not palpable. It has been shown that in only 55% of cases is the bladder located in the right saggital fossa, in 25% of cases it is located outwards to and in 25% inwards to its normal bed. In some of our cases the organ has been found as far back as the kidney and in others as far inwards as the inner margin of the rectus. In others high up behind the liver and in a few instances as low down as the iliac fossa simulating a descended kidney. The position of the gallbladder is further modified by that of the liver. If the later is descended, as is not infrequently is, the gallbladder is correspondingly lower. The organ may become palpable when there are pathogenic changes. The writer has frequently palpated the bladder in positions at various levels beginning at the costal margin and reaching fully into the pelvic fossa and again it could be felt as an indefinite induration varying in circumscribed sizes from a hen's egg to that of a goose egg. In some instances it has been found to be fixed and in others in varying degree of mobility, often insensitive and again so tender as scarcely to admit of being touched. In some cases of large distention there were no local or general symptoms and again accompanied by a train of intermittent,

short or prolonged regional and systematic manifestation of the gravest character. It is not infrequent where in the presence of a symptom complex of the stormiest character, it is impossible to feel the faintest indication of a gallbladder and when after an incision is made, we find it contracted over several stones, no larger than a peanut or a hazelnut. The character or severity of the pain is not at all in proportion to the pathology.

When we return to study the function of the gallbladder, we find a great diversity of opinions. J. B. Murphy believed that the bladder is a sort of steam regulator. That it corresponded with the air chamber of a pump. That it stabilized the flow of bile through the common duct. Mayo Robison inclined to the opinion that the gallbladder is a reservoir for the storage of bile and where it was mixed with mucoid secretions from the bladder walls so as to make it unirritating to the duct mucosa. Hans Kehr expressed the opinion that the function of the gallbladder consisted of a storage chamber for bile that it secreted in excess of its immediate need. That the stored bile discharged when food was introduced into the stomach and it came in contact with and was mixed with chyme when it entered the duodenum.

Harvey, (quoted by Kehr), was of the opinion that in the civilized individual who eats frequently a storage reservoir for bile was superfluous, therefore a man would not miss his gall bladder and it might as well be removed. Brownlee (quoted by Kehr) believed that the chances for hepatic infection became greater, when the "pressure regulator of the liver function, the gallbladder," was removed, consequently contributing to shortening the life of the patient.

Hutchenson, (quoted by Kehr), attached very little importance to the function of the gallbladder, and he concluded that it was nearly functionless. That it was too small to serve as a storage basin, and unable on account of mechanical conditions and on account of its feeble musculature to exert any power of contraction to expel bile. It was his opinion that the bladder contributed very little toward digestion. He further fortified his opinions on developmental and comparative anatomical ground as follows: "The gallbladder is absent in the horse and ass, but is well developed in the cow and sheep, in spite of the fact that all these species are

plant eaters. It is present in the hog and is absent in the South American peccary. In the giraffe, its presence is inconstant. In general the bladder is larger and more frequent in meat eaters." It is absent in the pigeon but is present in the hen and turkey. In the amphibians and fish it is well developed. It originated in an early evolutionary period and represents one of the primary diverticulae, which has not entirely disappeared.

The late Boswell Park, about 15 or more years ago, maintained that the gallbladder is only a vestigial organ and is of no more importance to the human economy than the appendix vermiformis and it should always be removed when diseased.

The conviction has been forced upon the writer that from a clinical standpoint, the gallbladder like the appendix vermiformis is an atrium for the entrance of infection and consequent stone formation and that it can be removed with safety and in no way disturbs the biliary function. Nearly 70% of duodenal ulcers are located within three or four inches of the pylorus and suggest the possibility of their origin in an infected gallbladder, a cholecystitis following typhoid, pneumonia, septicemia and other acute infections.

In the light of recent research and years of practical observation at the operating table, we have been driven to the conviction that all gallbladder affections have their origin in infections. In a large proportion of cases the clinical history reveals a preceeding or a primary infectious process in some other organ. Practically all operators are of this opinion. There is still some difference of opinion as to the route by which the infection gains access to the gallbladder, whether it travels by the blood or lymphatic streams or whether the microorganisms find their way from the intestine along the walls of common and cystic ducts or whether it is along the continuity of the tissues involved. Be that as it may, the fact remains that examinations of the affected gallbladder wall always reveals the presence of microorganic life and the resultant tissue changes.

Some authors maintain that a gallbladder once infected remains infected even though there may be freedom from clinical evidence for varying periods of time. The opinion that

an infection is the etiological factor is generally admitted.

It may be interesting at this time to consider a point or two regarding the initiative changes in the bile tract that favor the entrance of the micro-organisms or rather what constitutes a locus minoris resistentis. It may lead to a better understanding of the process which we have under discussion.

Among the many opinions that have been advanced to account for the presence of the pathogenic factor in disease of the gallbladder, is the most recent one by S. J. Meltzer (A. S. M. S. April, 1917, Page 469). He lays stress on phenomenon studied by himself which he terms a "disturbance of the law of contrary innervation."

He draws an analogy of the mechanism between the urinary and gallbladder. Of the former he states: "We know that the collection and evacuation of the urine is controlled by the antagonistic activities of two muscles of the bladder. During the accumulation of urine in the bladder the detrusor muscle is relaxed and the sphincter is tonically contracted while the reverse takes place during evacuation, the detrusor contracts, and simultaneously the tonus of the sphincter is inhibited." He applies to this mechanism the phenomenon of crossed innervation which we find in control of the activities of the bladder and he believes the same mechanism applies to the gallbladder. He further argues that "the law of contrary innervation is manifest in all functions of the animal body." "That a disturbance of this law is a factor of more or less importance in the pathogenesis of many disorders and diseases of the animal body."

In studying the muscular arrangements of the gallbladder and its terminals which is the ampulla of Vater, we find that they are antagonists. The circular fibres in the end of the common duct the ampulla of Vater, Oddi's muscle, contract and resist the flow of bile but relaxes while the detrusor in the gallbladder contracts for the purpose of expelling the bile into the duodenum. So long as the nerve impulses are balanced between detrusor and the Oddi's sphincter the bile flows with sufficient rapidity to insure its discharge without delay. But if this nervous adjustment is disturbed, perhaps by some functional disorder, sometimes psychical, the physiological storage of bile may be

converted in to a pathological stasis and thus become the cause of a more or less serious ailment of some part of the biliary system." Such a condition is probable when the contraction of the common duct sphincter is delayed and cannot be overcome by the contraction of the detrusor, resulting in an abnormal stasis. Under exaggerated conditions it might induce a jaundice, and even lead to a biliary colic. When this condition is repeated and is of longer duration, these attacks of primary pathological biliary stasis may sooner or later lead to inflammatory processes and their consequences to the formation of biliary calculi." In other words stasis forms a predisposing factor for lodgement of infection, particularly when the individual has passed through an attack of infectious disease where the pathogenic organisms float in the circulating blood. If there is a continued repetition of prolonged stasis in the gallbladder, the normal resistance of the mucosa may be reduced and form a favorable residence for micro-organisms creating a serious pathogenetic factor.

The foregoing supports our present views that all gallbladder diseases have their inception in microorganic infections. For a number of years the late Dr. W. R. Lavender subjected a series of gallbladders operated by the writer, two hundred in number, to a careful microscopic examination. He attempted a special classification, but found it impracticable, he insisted that the specimens exhibited a continuously progressive inflammatory process. It was his opinion that the pathogenic factors and the tissue changes were the same but differed chiefly in degree. The series of specimens exhibited different degrees of a general inflammatory process which differed in no way from similar processes elsewhere. The early cases showed only such elementary changes as are observed in infections confined to the mucosa, later processes extended to the muscularis and serosa. The grave changes were those to be expected, in terminal inflammatory processes. The microscopic lesions so merged into one another that it was even approximately impossible to separate them into special stages. One observation, however, was common to all specimens and that was the uniformity of the underlying pathogenetic irritants, the microorganisms.

R. S. Fowler has recently attempted a classification of the inflammatory stages. He

describes, 1 subacute cholecystitis; 2 chronic catarrhal cholecystitis; 3 chronic cholecystitis. This classification is arbitrary and unsatisfactory, because the chief characteristics thickened mucosa, villi, denuded epithelium, infiltration by lymphocytes in the mucosa and submucous membranes, hyperthorified musculature are in evidence from first to last. The only difference between the initial and terminal stages is a matter of degree. The tissue changes seemed to indicate that when infection had once become ingrafted on the gallbladder parietes, the condition became permanent and progressive. The symptom complex did not indicate the degree of pathogenic changes. It has been the experience of all operators that a gallbladder wall that is in the terminal stages of degenerative changes with or without stones often exhibits mild or no clinical manifestations and per contra moderate histological changes with or without calculi presents the most severe and alarming symptoms. The localized pain and associated distress occurred seldom or frequently and sometimes was absent for years and yet the pathological changes might be continuous. The writers operative experience in this line of work dates back twenty-five years. The early operations were practically all drainage cases. The conditions varied from the so-called "strawberry bladder" without stones to extreme terminal changes like the small contracted bladder containing stones and buried in dense masses of adhesions. There were included large and small bladders with thick and thin walls, with a solitary and multiple calculi, that were incarcerated in the cystic duct and those which were freely movable. There were bladders containing large amounts of clear and muddy mucoid fluid and others, varying amounts of pus, and again some containing black, tough mucous and in others a coffee ground deposit or a sediment of biliary sand and finally the small contracted empty gallbladder. All these varying conditions were drained and, strange to say, in the majority of cases with symptomatic relief. However many of these cases were not fully relieved, distress and more or less pain continued. The greater numbers were completely relieved for the time being, but with the passage of years, a certain proportion of the "cured" cases experienced a return of their old symptoms, secondary operations became necessary and they were drained again, some only to occur. We then began to realize that the microscopic bladder

findings were only products of the disease, that the underlying pathogenetic factor was a microorganic infection. Some of us advocated a post operative medicinal treatment in the form of a modified Carlsbad cure or the internal administration of such antiseptics as had been proven experimentally to be eliminated by way of the biliary passages, chief among them was salicylic acid. But recurrence persisted. At this juncture, in this country, Roswell Park made his convincing argument in favor of total extirpation of the gallbladder. We had forgotten about Langenbuch's teachings. We hesitated on account of the greater mortality following cholecystectomy. We had failed to appreciate the vascular distribution about the biliary passages. Deaths from hemorrhage were not infrequent and were attributed to a lack of fibrin ferment in the blood. We had not learned how to make the gallbladder accessible. We became convinced, however, that the organ had become irreparably damaged and should be removed but we were not masters of a safe technique. Finally W. J. Mayo, that master of biliary surgery, taught us a technique that is exact, safe and not difficult, so that now there is little difference in the mortality between the complete removal and drainage of the gallbladder.

Cholecystostomy, in spite of the fact that a very large number of cases experience complete relief of all clinical discomfort, is at best a temporizing makeshift and an incomplete operation because it removes only the products of the disease and not the disease itself.

The most recent practice of the longer vertical rectus or the oblique costal incisions enable us to obtain a satisfactory exposure of the gallbladder and the cystic and common ducts. Often the liver can be drawn out of the abdomen sufficiently so that the operation can be done completely outside. The cystic duct and its accompanying artery can be clamped with a Kelly hemostat, a chromic gut ligature can be passed so as to include both artery and duct in the pressure groove created by the hemostat which has been loosened, after tying the ligature the hemostat is reapplied above the ligature. A second hemostat is applied about one-fourth inch above the first. The cystic duct is then divided between the clamps being careful not to incise the retrocystic tissue, for an anomalous branch or the cystic artery itself may

have escaped the chromic ligature. Traction on the upper clamp now separates the divided ends of the cystic duct.

Traction on the upper clamp will enable us to dissect away the gallbladder from its attachment to the liver. In doing this the greatest care must be used, by patiently dividing bit by bit the connective tissues and the peritoneal reflexions so as not to open the bladder. The denuded surface is brought together with continuous chromic suture beginning at the stump of the cystic duct. This has been termed an ideal cholecystectomy. There are conditions where the gallbladder must be enucleated beginning at the fundus. Sometimes adhesions prevent the liver from being lifted into the wound, the cystic duct is not easily accessible. Then the operation must be made in reverse order and it can be done quite as successfully providing the hemostasis is exact. Which ever method we pursue the ligation of the cystic duct must not be too near the common duct. It is possible in making traction on the gallbladder to create an angulation of the ductus choledocus, so that the ligature may include a part of it producing a permanent common duct fistula. The operation is concluded by placing a drainage, either tubular or rubber cigarette, reaching to the stump and extending out of the incision.

It is interesting to observe the unanimity of the older operators of the present generation regarding the present management of a diseased gallbladder. The concensus of opinion appears to favor its removal and it is only within the last few years that this conclusion has been reached. It is indeed a long time since 1882 when Langenbuch published his first case of cholecystectomy. He insisted then that he removed the gallbladder not because it contained stones but because it made stones. This distum is as true today, thirty-five years later, as it was then.

We agree with one of his followers, who said, at the time of his death, Berlin, June 11, 1913: "He will long have been dead when his tree will have borne fruit. But from these fruits the world will partake for many coming years, certainly as long as cholesterol circulates in the blood, bacilli in the biliary passages and as long as the human being is afflicted with gallbladder disease, men will continue to speak with reverence the name of Carl Langenbuch, the originator and master of gallbladder surgery."

Discussion

Cholecystostomy—B. R. McGrath, Grand Island,

Cholecystectomy—A. F. Jonas, Omaha.

E. C. Henry, Omaha.—Mr. Chairman: I was in the House of Delegates when the first paper was read and therefore did not hear it. I enjoyed Dr. Jonas' paper very much indeed and can heartily corroborate all that he has said, so that if in this talk I go over some things that the first paper took up you will understand that I do it through ignorance.

There are some things about the anatomy of the gall bladder that I just want to call your attention to, supplementary to the paper of Dr. Jonas. Just to see how the arrangement is we will make a rough sketch. I call your attention to the fact that here comes the cystic duct. In the removal of this duct very frequently the gall bladder is tied off, we will say, at that point. Now, what happens to the little part of this cystic duct that remains? Nature comes in and makes a second little gall bladder out of that. And then if we have the good fortune to get out well to the lower end of the cystic duct, what happens? Then we find that we have a common duct dilatating to make a sort of a gall bladder. I am just calling your attention to the opening of the common duct here into the duodenum. Now, the muscle that he was speaking of here, is the true sphincter muscle just the same as the pyloric end of the stomach, just the same as the internal ring in the uterus and these ducts are all lined with little involuntary muscles that are undergoing the same rythmical contractions that all the arteries in these involuntary muscles are undergoing. And this dilatation is to act as a sphincter forcing the secretion on down just as nature originally intended they should. So no matter how hard we try to derange nature she tries her very best to put it back just as it was originally.

We hear a good many say the gall bladder and the appendix haven't any particular function. Don't you think it would be a good deal finer attitude for us to say that we don't know. We are beginning to think that possibly the tonsils, appendices and gall bladders have some real use in the world, so when we don't know, let us say we don't know. If it becomes diseased we can take it out, but don't let us take it out simply because we say it is a useless organ and we don't need it. Now, the first thing for us to learn as Dr. Bloodgood said last night is to learn the changes in diseases. You think back over your gall bladder troubles, and you will be impressed with this fact, and you will remember that they told you a pyloro-spasm story. A spasm of the pylorus can be caused by any one of three things. First of all, an ulcer of the stomach or duodenum will cause a pyloro-spasm; diseases of the gall bladder and chronic disease of the appendix will cause pyloro-spasm. When the patient comes into your office and tells you a pyloro-spasm story, you must unravel the story and find out which of these three conditions exists. I don't think we can come to our state meeting and say we are going to take out all gall bladders; we are going to drain all gall bladders—but we are going to take each individual case and meet the conditions, knowing just what we have to deal with and we are going to know what is the matter with the head of the pancreas—what

is the condition of the stomach and the gall bladder and meet that condition.

There is one other point. Gall bladder disease is a metastasis and you ought to take out a diseased gall bladder. We will admit now that the gall bladder is a disease for just the same reason—that you would take out the chronic diseased appendix, the chronic diseased fallopian tubes—it will never become healthy by any system of drainage that we know of. If it is diseased it ought to come out. That is a metastatic condition and the disease is in some other part of the body. Twenty-five per cent of the cases are in the mouth and I want to recommend that little book that Billings has just gotten out on Focal Infection.

The tonsil and the appendix and the gall bladder and a lot of the lining of the stomach are a lymphoid tissue and if we get a little fresh infection in the tonsil it can aggravate a process that is already going on in the gall bladder. Therefore, you can just as well start on the cure of your gall bladder disease when you get the gall bladder out. You should go back and locate the starting point.

Suppose you take out the gall bladder and that seat of infection is removed, and you leave a bad tonsil and the tonsil gets a little reinfection in itself, now if it has the right grade of virulence then the next attack may produce an ulcer of the stomach or the next attack may produce an attack of appendicitis, so don't you see, if a man has a primary feed center somewhere it may produce disease of his gall bladder and if you focus all your attention on the gall bladder he will come back in a little while with ulcer of the stomach or appendicitis or some resultant trouble.

W. R. Boyer, Pawnee City.—I had the pleasure of listening to Dr. Judd at the meeting of the Tri-State Medical Society in northern Illinois, when he reported results of 60 experimental operations he and Dr. Rosenow made, to determine the effect of cholecystectomy. These were done on animals. The results given by him show that inside of sixty days the ducts increased to five times normal size. The resistance of the outlet of the tube at the sphincter decreased from an average of 110 mm of water to 20, upholding the contention of Dr. Murphy and Dr. Mayo that the function of the gall bladder is but that of a pressure regulator, and when they began to consider the fact that it held but an ounce and a half to two ounces of fluid and 40 ounces of bile escaped in 24 hours it was not possible that it acted as much of a reservoir. The contention that he made at the time was that dilation of the duct acted as a reservoir, a supplementary gall bladder, and his idea was this: the gall bladder is a diverticulum, the same as an appendix, and we all know that diverticulae are dangerous in case of infection. What goes in must come out the same canal, and Dr. Percy aptly says, it is just as sensible to drain an appendix as to drain an infected gall bladder because if you leave the membrane there, that diseased membrane, when drainage closes, would cause a recurrence of the trouble.

A. I. McKinnon, Lincoln—Dr. Jonas covers so much territory that it is impossible to discuss his paper fully. In fact his address might be classed as a

lecture on the anatomy and physiology of the gall-bladder, and a compilation of the literature of the surgical treatment of diseases of the gall bladder. I was a little disappointed that the doctor did not give us the results of his own experience and his indications for cholecystectomy. The doctor has had a large experience extending over many years and the deductions he has drawn from that experience ought to be valuable to the rest of us. Instead of this, however, he quotes authorities which could easily be referred to in text books and medical journals. Another thing that impressed me as being a little strange is the fact that he does not give Sir Mayo Robison and Moynihan credit for developing technic of removing the gall bladder. As we are now allies of Moynihan and Robison it is perfectly all right to give them the credit due them.

There is one point in the technic of cholecystectomy that I would like to call attention to and that is the hammock position. By elevating the shoulders and the pelvis, the abdominal muscles are relaxed and it makes surgery of the gall bladder and ducts much easier, and the operation can be done through a much smaller incision. In the position the doctor recommends, of elevating the lower part of the thorax, the abdominal muscles are stretched and tense, requiring a long incision in order to retract the margin wide enough to get at your bile ducts. This position is mechanically wrong. Another point in the technic of cholecystectomy where you have an infected gall bladder or an empyema, a transverse incision below the ribs will often permit you to remove the gall bladder without exposing the small intestines. The hepatic flexure of the colon is pushed out of the way with a pad or a sponge and it practically excludes the general abdominal cavity and the gall bladder may be removed or drained through this incision.

To take up the indications for cholecystectomy, I am surprised that the doctor quotes the Mayos' as authority for this operation. It must be remembered that the class of surgery that goes to the Mayos' is a little different from the surgery that the ordinary medical man meets; in other words their surgery is mainly on ambulant cases and to generalize and lay down a rule of action from these premises for the guidance of the rest of us would spell disaster to many a patient.

When a patient is desperately ill from gall bladder trouble it requires a well ripened judgment to decide whether a cholecystectomy or a cholecystostomy is the proper thing to do. My opinion is, when the patient is very ill you are doing better surgery by draining than by removing the gall bladder. I have opened the gall bladder under a local anesthetic more than once without removing the patient from her bed and have had the patient recover, and am morally certain the patient would have died had I put her on an operating table and given a general anesthetic and removed the gall bladder. I have had both experiences and know whereof I speak. If I were to formulate a rule for the guidance of the other fellow, I would say: When the patients are desperately ill, drainage of the gall bladder is the operation to do, and preferably performed with a local anesthetic. And for patients with gall stones or chronic cholecystitis, and otherwise in good gen-

eral condition, removal of the gall bladder is the operation of choice.

J. S. Welch, Lincoln.—I am glad to see prominent men taking different sides; that is proof positive of the importance of the consideration. It goes without saying there are many gall bladders which should not be removed just as there are a good many intestinal obstruction cases where you cannot wait to remove the obstruction. Finney feels that too many gall bladders are being taken out, just as are too many ovaries, too many tonsils; but that is not the only side, as has been well shown here. It seems to me that when all of this splendid material given us is tried out and brought down to its few premises, the question will be, what are the risks as to life, and what are the risks as to permanent recovery? With those we have to consider, what are the immediate risks as to life and what are the later risks. The immediate risks in cholecystostomy are of minor importance. The operation is simple, it is quick, and without doubt, in the extreme cases, it is the operation of choice. But in my mind, since there is such a great question oftentimes as to what the permanent result is going to be, cholecystectomy becomes the operation of choice where there is not a great risk as to life. Time does not permit one to go into this in great detail but there are three or four points upon which I would like to touch.

Recently I have seen a case of cholecystectomy where an abscess the size of an ordinary bean existed behind the gall bladder. Now, drainage probably would not have done any good. It would not have been found if the cholecystectomy had not been performed. An argument against cholecystectomy is that if you ligate the stump of the cystic duct and it is an infected case, an acute cholangitis will occur and the gall tracts will become so infected that your patient will die. Had gall bladder drainage been done, this would not have occurred. In the technique there is a step which will overcome this. Tie your cystic artery separately and clamp the cystic duct stump and then if your symptoms of cholangitis come within 48 hours take your clamp off. By this time there will be adhesions enough around the clamp to establish a sinus so that the duct may drain out.

Cholecystectomy helps you also when you have stones in the common duct, because you can incise slightly the opening of the duct and make only one opening. Through this a common duct stone may be removed and drainage or closure easily established.

A. F. Jonas, closing: The first thing to be decided in a gall bladder operation is whether the gall bladder is really diseased. If you open the abdomen and find that the gall bladder is not diseased you should have the courage to let it alone. There are too many operations done simply on the clinical diagnosis.

Dr. Henry has called attention to pyloro spasm which may result from gall bladder disease; it is a very important point. We sometimes have a renal calculus which clinically resembles gall bladder disease. If the gall bladder is normal and healthy we can easily milk out the bile and if the gall bladder contracts when it is empty it shows that its muscular power is not impaired. It does not require a great

deal of courage to say before the friends of the patient who are present to see you remove stones, that there are no stones.

About three days ago we had a patient who insisted he had a duodenal ulcer. He was examined by a number of men and the clinical symptoms pointed toward duodenal ulcer, and yet there were many features which made us feel uncertain. We finally decided on an exploratory operation which the patient wanted and which we willingly did in order to clear up points in dispute. He said: "I would rather have my abdomen opened and looked into so that you may feel certain about the existing conditions." The abdomen was opened and pylorus and duodenum and the rest of the stomach were absolutely free from organic disease. Someone has said there were cases in which the ulcers were no bigger than a pin-point and couldn't be seen, therefore an operation should be made if the clinical history indicated ulcers. In this case we found a normal gall bladder and no ulcers. We enlarged the opening and reached down and pulled up the cecum and we found a diseased appendix. The appendix was removed but we did not operate upon his stomach or gall bladder. I think this is a very important point. I have stood by and seen surgeons operate in gall bladder disease, either draining or removing the gall bladder, when it was absolutely necessary.

Now there is no question but what the gall bladder has a function, just what that function is, is still a matter of dispute. Physicians have not yet agreed just what the gall bladder is there for, the only positive opinions come from surgeons and they are simply opinions, therefore we are still uncertain. I thought I had stated very clearly in my paper that I am in favor of cystectomy wherever the gall bladder is diseased. For many years I did nothing but drainage, the cases were all drainage cases and then occasionally, now and then, when a case returned with a recurrence of symptoms, I felt that it was necessary to take out the gall bladder. In some of these cases we drained the second time and in some the third time, then we thought it was time to take out the gall bladder and I have come more and more, in the last six or seven years, to cholecystectomy where the gall bladder is diseased. There are occasional clinical conditions, sometimes pathological conditions, where haste is required, then we drain, and if necessary take out the gall bladder later. One point brought out by Dr. Henry I think is a very important one, and that of focal infection. We know that the primary disease or focal infection is not always in the gall bladder and that it starts in remote points which he mentions. I saw Lane three years ago in London open an abdomen, exhibit the gall bladder filled with stones. He said: "Gentlemen, those stones will take care of themselves if you just take out the colon," which he proceeded to do. In that same clinic he showed us a goitre which he believed started in the colon. Lane has had an enormous experience and he perhaps is over-enthusiastic. Our laryngeal friends think all infections start in the tonsils, the dentists in the teeth, but be that as it may, the gall bladder is nearly always secondarily infected, the primary seat of infection is somewhere else. All physicians are looking for

the primary seat of infection and removing it. There is no question in my mind that gall bladder infection sometimes originates in the teeth or the tonsils or the colon.

B. R. McGrath, closing: Those discussing the paper have emphasized the point that certain changes take place which demonstrate that the gall bladder is an organ that has a function. We can go even further in admitting certain things that Dr. Henry has brought out in his drawings here, that the opening of the common duct is not directly into the duodenal wall with the sphincter around it, but the direction of the common duct as it passes through the duodenal wall is diagonal and Coffey has shown by his experiments that a good many pounds pressure can be pumped into the duodenum and nothing will go back into the common duct. Now, we will admit that this sphincter of Oddi's does dilate and we will admit that material will still not be permitted to regurgitate from the duodenum into the common duct, but there is still another factor and that is this: We have a common opening of the pancreatic duct and the common bile duct and we are not so sure about a regurgitation from the common duct into the pancreas and the infection of tissues there. The dilation of the common duct, demonstrates clearly that nature is trying to compensate for the removal of the gall bladder, that there is a function. One point of my paper was to emphasize the fact that if this function be present, it is a hint for us that the gall bladder, in all cases where it is capable of carrying on its function, should be retained; that cystectomy should certainly not be the universal operation in gall stone cases any more than drainage can be made the universal operation in these cases.

Then, too, there is the other point that Doctor Henry touches upon, the point in my paper which I am glad he did emphasize, the matter of focal infection and the possibility of reinfection of the gall bladder. For good results in these cases following drainage, it certainly is an important thing to get rid of the focus of infection.

As to whether or not gall bladders are freed from infection by drainage it is a hard matter to decide—but certainly a great majority of these cases are freed from infection by drainage.

As to the rare indications for cholecystectomy—the possibility of finding an abscess back of the gall bladder, I think this case of Dr. Welch's is a unique one, but I do not think you would remove 10,000 gall bladders for the possibility of finding an abscess in that locality once. Neither can we compare the appendix to the gall bladder for drainage. They are certainly two different propositions. The appendix, with a mouth through which material continually enters cannot be compared with the gall bladder which is shut off from the intestines by an oblique opening and a sphincter muscle.

Diagnosis.

Charles C. Allison, M. D., Omaha.

The far reaching influences of the great war will change conditions in the practice of medicine and surgery in civil life. A tendency will develop toward a more diversified character of work on the part of what we often style the general practitioner and he will need to correlate the laboratory data, the X-ray findings and the bedside facts including a carefully estimated history.

"Seeing through a patient" is an expression first heard by the writer while serving as an interne under Dr. Wm. T. Bull in the New York Hospital in 1890. This impressive phrase was typified in the diversified abilities of this great surgeon. This was almost a decade before the discovery of the X-ray and long before the modern refinements of the laboratory had reached the present day degree of perfection. The practitioner of that period who looked at the tongue, the conjunctiva, took the temperature, and after a graceful exhibition of a gold watch, noted the pulse and followed with a minimum of auscultation, palpation and percussion came to a conclusion by a subconscious process of exclusion and elimination which was often enviably correct. The heritage of having known the individual family traits, the weighing of subjective answers, the employment of the dignity of silence, an apothecarial nicety in summing up for the plaintiff, focussed an encouraging degree of diagnostic superiority which resolved the scene at the bedside into one of confidence. More is now required and more expected. Progress is noted everywhere, and our applied science, medicine and surgery, is fully apace. Laboratory proficiency contributes substantially to this progress by means of blood pictures, by views of gastrointestinal flora by determining whether blood in the stool is remittant (probably malignant) or intermittent, (probably benign), by chemic reactions, by analyzing kidney functions and variations and determining whether such variations are primary or secondary, and in definitive and delicately measured estimates of the evidence brought to us by the X-ray findings. To reduce to finite terms the probabilities and possibilities at the earliest possible moment of the departure from physiology, and to add qualifying color, is the intricate position accepted by the clinician in his study of the

"moving picture" of living pathology whether functional or organic. The realm is not different, though we believe more complex than that met in law, when the attorneys having no precedent, entrench their positions in argument by what seems "most reasonable and probable," the parallel yielding when there are written minority opinions. The useful and practical interest in the study of the cytology and serology of the blood has profited the surgeon because in a major classification, living pathology is either neoplastic or inflammatory. The service of such supplemental knowledge lies chiefly in the accurate application of such knowledge, of the degree and character of the alteration in the white cells, cytologically, and serologically in the Wassermann and Abderhalden tests. Fundamentally it is the human agent who hands down an opinion, e. g., on the Wassermann and none assumes unerring accuracy. "It is a symptom" (Nome) and one of value, allowing, as we must, a positive reaction in a limited number of other ailments and allowing also a liberal percentage of negatives in latent syphilis. These errors "more than one third" (Jelliffe) include that very interesting class of cases showing departures in symptomatology and in prognostic termination, as illustrated in reports of "disappearing tumors" and of "cures" following the use of incorporated remedies. Here potassium iodide, and hydrargyrum, and other aids in therapy should have the credit rather than "secret remedies."

It is not a matter of marvel that our older teachers said "when in doubt give potassium iodide" and their custom was self sustaining because of results. A well directed drive with iodides, alternating with mercury and sodium cacodylate will reduce the ratio of surgical interpretations, as in gastric crises, dynamic ileus of plumbic origin, and in new growth manifestations when doubt remains as to lues, whether **insouciant** or **admitted**.

Another notable field is in an analysis of joint pathology, where ten per cent of cases are found responsive to what has been inaccurately styled "mixed treatment" and rest. In central nervous organic changes spinal fluid reactions resolve doubtful clinical pictures while metabolic disturbances aid in a decision in splenic disease, and illuminate the anaemias in a most graphic and engaging manner.

The writer has referred ("Notes Upon Border Line Cases"—1906) to a delicate greenish tint in the pallor of pernicious anaemia, and it is noted in this connection as having a clinical, but so far undescribed mate in symptomatology, viz, a hue which may be denoted as a "subdued hectic" in diabetes. This observation is not made as having ranking importance but supportive of the principle which urges a Sherlock Holmes habit of observation. Just as in palpation the warm gentle hand soon dissociates the rigidity of fear or apprehension, or the litigation type; the same sense highly developed will allow the index finger to differentiate between the impact of a receding blood current in the femoral vein and that of a protruding bit of omentum in the inguinal canal.

Granting infection, semi daily polymorphonuclear readings are, in a degree, determining, but time destroying and confusing, unless the integers amalgamate. Potentially the picture may add to our concept of that intangible factor, always a matter of solicitude, namely the individual resistance.

It is feared that our own view of the correlated beside picture—the "**tout ensemble**"—(palpable findings of abnominal resistance by a repeating, comparing and disassociating piano touch) may seem to be too resolving as a determining factor. But the writer firmly believes that the pulse, general physical expression (including the face) the condition of the skin, the record of completed waves of peristalsis (passage of gas) of remitting emesis, of a general approach toward a more normal "bed demeanor" and possibly a temperature recession (although this last is the least reliable and at this period most frequently improperly weighed of the more usual signs) when laid upon the clinical scales will establish themselves as the conclusive weight in a major abdominal consideration. A general recession of symptoms will be noted by the alert but judicial clinician before the leucocytic wave becomes dependable. Likewise this horizontal abatement of symptoms has the great recommendation of presenting a multiple index, a checking guide commensurate with the importance of the clinical conclusion to be reached.

In an abdominal case of assumed gravity when a **three hour** period of intent obser-

vation is needed, and at the end of a second analysis a close decision is imperative, no single symptom or laboratory index should be regarded as conclusive. There remains no time for a referendum and no chance for a recall should such be desired. There is another responsibility to which clinical observers are exposed, and which entails a temptation to yield to an operative stampede. This is an unrelenting advance of disquieting symptoms for a period of some six hours in an acute overwhelming type of peritoneal catastrophe. (Cregg Smith). Here the writer makes the point that in a large majority of such cases a period of intent observation with preliminary work going on e. g. (a) position, (b) ice, (c) enemas will rarely disappoint in giving an anticipated intimation of nature's balance in mutely suggesting the most logical course of therapeutic procedure. This sometimes leads to a temporary halt in surgery although the latter requires more personal generalship than the more dramatic and sometimes disastrous plan of immediate operation. This period of truce, indeed, while the surgeon stays his hand, has been the misunderstood zone in verbal and documentary discussions relating to this puzzling but not very large per cent of cases. Germane to this feature is the point first mentioned by Cartledge "when gas does not escape before the operation it rarely does afterward."

We must not assume for instance that every case of inflamed appendix is immediately surgical, nor that every typhoid perforation is fatal without operation; we must not employ the words "always" and "never" so lightly, nor endorse so positively a tenet which in fact and in application can be translated into stampeded authority as another's custom.

Philosophy must be cultivated as a part of our used armamentarium. The data from a digested history, from weighed laboratory and X-ray records may throw a light of the **milky way** type, nebulous in the extreme. This complexity can be best conceived by one who sees much in a landscape, in a canyon, in a Rembrandt, and in the horizon of the bedside or examining table.

One of America's greatest surgeons and certainly one of its most graphic and classic writers, Maurice H. Richardson said, "we

should listen to the patients story in full." This is fundamentally correct but the practiced "neuro" or psychasthenic will exhaust the physical endurance of the ripe diagnostician. This is a loss from a utilitarian view, because of the wasted talent which needs conservation for the highest public service. A skillful cross examination, repressing a meaningless recital, and developing useful facts, is an art fully as useful in the consulting as in the court room. Diagnosis is the talismanic surgical word of this decade; light and yet more light; the appeal of the clinician; thoroughness the expectation and right of the patient. The dead reckoning of the laboratory, the serial X-ray checks and clarifying tests, applied selectively by the surgical clinician in a relevant way, represents the highest function and most ultimate compass for good in human effort. A blanket diagnosis is inexcusable (J. N. Hall) but a provisional diagnosis with a stipulation of further verification is parallel with a legal custom when the patient understands this situation. A tendency to look for a certain condition because of personal interest or because supportive of a popular idea, an unverified but approachful picture, heightened by an impelled tendency toward a "snap diagnosis" is the exact nadir of the real diagnostitian's view. He makes a syllabus relevant and applicable, out of a most intricate heap of apparently mishappen bits of clinical testimony and is **born** and **made**.

The contributions of roentgenology seem without limit, going beyond "movies" in its reflection of bones, foreign bodies and soft parts; of stages of pathology, shadowing anatomy, of showing functional influences upon physiology; no region remains unexplorable. Yet the **interpretation** of this composite maze is one of the interesting and unfinished spheres of this useful aid, now less than twenty-two years old, and employed practically everywhere including present day battlefields. The X-ray operator must be a finished physiologist, and anatomist; know pathology and have a firm judicial mind, and a laconic expression. It is well to bear in mind that the osseous system may show **bilateral** deviations. Confirming and elaborating pathology in the chest, glandular structures the kidney and it's collaterals (in con-

junction with a "whole time" man) is a part of the X-rays place in diagnosis. Its arresting influence in surgery, as in metastases, in the differentiation of bone changes are to be gravely weighed and doubts resolved in favor of a temporary staying of the operative hand awaiting a therapeutic aid in diagnosis. Time so spent rarely leads to a "too late" indictment, and this accusation is rarely sincere.

The patient who says "I have stomach trouble" is like the one who says "I have kidney trouble." The one is apt to use the abdomen as a standard of measures for containing countless denoted but unrelated symptoms; the other uses the back as an area commensurate with his notion of renal symptomatology.

Application of a sensible part of "The Hall Treatment," or of the "Ralston system" toward a more regular and physiologic drainage of the colon will avert the threatened "furor operativia" toward colectomies, short circuiting of the ilio-colic segments and diminish the materiality of kinks, of veils and of webs; likewise it will permit a degree of physiologic impressment upon Meissners nerves with the resultant "**feel**," so accurate in a completed wave of peristalsis. The individual who looks like a "caddie" with his load of X-ray plates, and nationally selected laboratory reports; the traveled neurasthenic—is apt to uncover an abdomen which as exhibit No. 3 will show a varied style of laparotomy scars, and a corresponding number of symptoms as yet unrelieved. He has a story of graphic comparisons, competing with those related by other habitues of the bridge club.

The laboratory service of skilled experts both of verified and of prospective value is to be encouraged; the Wassermann, the Widal the Schick reaction (the latter especially attractive because of its resolving doubts as to need for immunizing in the application of one of the greatest of all discoveries,) culture practice, the endless checks on unproved claims are all desirable. Yet, in conclusion absolutism must not prevail, but the view that the best clinical complex is of a containing or holding character in the voting weight toward a diagnostic decision.

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Medical Inspection of School Children.

The importance of medical inspection of school children is rapidly becoming appreciated. The school board of the city of Omaha has recently shown its wisdom by appointing a physician to assume charge of this work in the public schools. During the past two years the committee on Public Health of the Omaha Commercial club, has done much to bring this question to the foreground. They succeeded in having a system of nurse inspection put into effect last year but now a physician has been appointed as chief and with the assistance of capable nurses will be able to place the medical inspection of school children upon the proper plane.

The members of the Omaha school board are to be congratulated upon their choice of Dr. Ernest T. Manning as chief of this work. He is well qualified for the work and is vitally interested in it. Dr. Manning is to be congratulated upon having a nurse in charge who is so eminently fitted for this work as Miss Townsend. Upon her must fall the burden of details connected with the inspection of thirty thousand school children. It is to be hoped that during the present school year, Omaha may be spared the wide spread epidemics of contagious diseases which have so often visited her. These have been fostered in the public schools but ought now to be eliminated.

Pure Milk.

The problem of furnishing a city with pure milk is only second in importance to that of furnishing a supply of pure water. The necessity of bringing milk a distance of twenty-five to one hundred fifty miles makes it imperative that some scheme of sterilization be used. The fact that the milk comes from such varied sources over which little or no control is had, emphasizes this need. The best method of purefying milk is that of pasteurization. This method requires a considerable outlay for machinery. The cost of delivery is considerable because of the type of container necessary and because of the small quantity used by each family. Wagons and horses soon run into large sums of money. The cost of labor in this style of delivery is considerable. All of these things have made the furnishing of pure milk to cities fall into the hands of a few large concerns. This is well and good where the monopoly thus created is not abused. Human nature, however, is the same when heading a public service corporation as in a private business, so that the price of milk has become almost prohibitive to the poor. It would seem that a scheme of public milk stations could be established which would reduce the cost of delivery materially. Milk could be delivered to these stations in large quantities, the patrons going there for their daily supply. In this way the expense of delivery charged against each quart of milk would be materially lessened, placing the price of milk within the reach of those who now are unable to secure it.

Strange Vendors.

It has always been poor policy to buy from strange vendors who come to the door, but under the condition of war it is a very grievous mistake to patronize them. One can get the same or better goods of a reliable dealer for the same money and have the advantage that the dealer stands ready to make good any unsatisfactory article. This principle holds good in regard to the purchase of toilet articles and drugs. It is much better to depend upon the judgement of a properly qualified druggist than upon the whims of an itinerant dealer who is here today and gone tomorrow. Because of rumors that toilet articles infected with disease germs are being sold in various parts of the country, it is especially opportune that we purchase from

those of established reputation. We do not wish, by speaking of this matter, to give the impression that we believe these rumors to be based upon fact in every instance, but we do feel that precaution is the better part of valor. It is exceedingly important for the physicians of each community to call the attention of the laity to this matter. In fact we deem it the physician's duty.

The Passing of Sphygmography.

The University Hospital of the College of Medicine, as a teaching institution, aims to impart to its students, not only the well recognized ways and means of diagnosis and treatment but in addition thereto, to bring them abreast of the latest advances in medicine. For this reason it is equipped with such modern methods as lead to greater proficiency in the handling of the sick, as for example, an electrographic station. Barker, in *Monographic Medicine*, Vol. II, p. 785, makes the following statement as to the clinical value of this new method:

'Electrocardiography has not only made us acquainted with a whole series of new facts regarding the origin and conduction of excitations within the heart, but it has greatly simplified the diagnosis of the several forms of cardiac arrhythmia. While these arrhythmias could, it is true, be analyzed before the advent of electrocardiography by means of the arteriograms and phlebograms obtained by sphygmography, still the securing of electrocardiograms and their analysis are relatively simple compared with the difficulties, the tedium, and the circumstantiality of securing the sphygmographic data. As a matter of fact, when a heart station, equipped with a modern electrocardiograph, is available, sphygmography can, for the majority of clinical purposes, be entirely dispensed with. The information desired can be more quickly, more easily, and more certainly gained by electrocardiography. Indeed, if we except the usefulness of venous pulse tracings for the diagnosis of tricuspid insufficiency and of pulsus alternans, electrocardiography has relegated sphygmography to a place of scarcely more than historical interest.

A Resume of the Present Views of Kidney Infections.*

C. C. Johnson, M. D., Creighton.

Many pages have been printed and hours of ceaseless toil expended, endeavoring to bring this subject to some common ground of understanding and acceptance.

The disease is often over-looked by the busy practitioner to his ever lasting discredit and the ruin of patients who might have otherwise been spared. An early diagnosis is of prime importance particularly because in the process some organisms are found early in the urine to be entirely lost a few days later. This phase shall be considered later in the paper. My private records show twenty-six cases incorrectly diagnosed. Of these a diagnosis ranging from gallbladder infection to meningitis, and from thence to no diagnosis at all had been made. Of this list several had been operated in search of gallbladder, appendix and pelvic pathology, while eight cases had been diagnosed typhoid fever. One case of pyonephrosis of left kidney in a husky young man, mass in left side, temperature 103 with chills, sweats and great prostration, pulse 130, urine loaded with pus and bacteria, was under treatment by our local osteopath at his office, the patient walking six blocks each day for treatment. Another case very similar, came under my observation. Patient a woman, with irregular temperature, sweats, chills, pulse 120 and poor volume, tumor mass in left side, pus and bacteria in the urine, with history of several attacks of typhoid fever (?) was being treated by a supposed very clever physician, for cirrhosis of the liver, with multiple kidneys on left side. Another case: Right lower lobar-pneumonia, young lad, 15 years of age under treatment by our local osteopath, with diagnosis of pyonephrosis, patient's parents had made preparation to leave on an early train for the city to have the case operated. These are extremes in carelessness, but there are others which are nearly as lamentable.

The practical importance of this condition prompted me to present this paper for your consideration. A comprehensive knowledge of the anatomy and histology of the structures involved is presupposed, and is necessary to understand the modes of infection, pathological lesions and means of treatment.

*Read before Nebraska State Medical Association, Lincoln, May, 1917.

Infection of the kidney as I shall use the term consists of the entrance of pyogenic or non-pyogenic organisms into the kidney structure with the production of a lesion. An acute pyelitis, pyelo-nephritis, acute nephritis, acute pyonephrosis and septic infarct to a chronic pyelitis, pyelonephritis, chronic nephritis, pyonephrosis, primary or secondary to a static hydronephrosis, in turn due to a uretral, prostatic or urethral obstruction, or a perinephritis, with or without abscess formation may be the result of various stages of the infective organization and dependent upon the virulence of the organism, avenue of entrance, together with the resistance of the tissues and assistance in the defensive campaign. Cabot makes two classifications. One in which the infection takes place in an apparently healthy kidney and not being a part of a general "lethal septicemia." The other class being the direct antithesis of this, or being dependent upon obstruction of the lower urinary tract.

Organisms.

There is no good reason which I am able to find to exclude any bacterium from the field, but for the sake of brevity, I shall confirm my discussion to the most prevalent agents found, considering them in groups.

The Coccus Group.

Under this class, may be mentioned the streptococcus and staphylococcus, the latter seem to be the most constantly present of the group.

The Typhoid Group.

We include the typhoid, colon bacillus, and congenes.

The Tubercle Bacillus Group—The Mixed Group.

A combination of any of the groups.

Pathologists, with the aid of those indispensable scientists, the chemists, have rendered great assistance in working out the areas involved by these various infective organisms, and have made an understanding of the subject possible.

The Staphylococcus Group.

This group in the primary infection, invades the capsular, subcapsular or corticle portion of the kidney it produces in the last named structure a glomerulitis but tends not to attack the tubular substance, and may propagate itself with upward or downward de-

struction of tissue, but laterally not extending beyond the pyramid. The extent of the lesion will depend upon the virulence of the bacteria and the resistance of the kidney structure. We may have a minute area or complete destruction of the pyramid, either rapidly or slowly. We may have an invasion of the perirenal fat forming all gradations of pathology due to infection in this portion, or invading the lymphatics of the capsule extend to other parts of the kidney surface and there reinfect, to again produce the cycle or become quiescent.

One fact stands out prominently, kidneys invaded by these organisms, either get well quickly or go on to a surgical situation, and medical treatment, outside of supportive measures is of no avail. They are the infections that produce our "island abscesses," "septic infarcts," large necrotic areas, pyonephrosis, pericellulitis and peri nephritic abscesses. Early in the invasion we have little disturbance of renal function, unless the glomerulus is badly damaged.

The Colon-Typhoid Group.

This group has different habits and characteristics. As a class in the human they are not pyogenic. I intentionally use the word human, for it is well to remember that bacteria do not always react in the lower animals as in the human and this fact must be taken into consideration, to be able to make the proper interpretations from laboratory work and experiments. In this group the germs get by the glomerulus, doing little or no damage, (that is if they enter through the blood stream), and entrench themselves at the pyramidal apex in the convoluted tubules making rapid extensions into the lining of the pelvis of the kidney, causing lesions in this tissue and producing marked disturbances in renal function, if the tubules are severely involved. They are readily found in the urine, which also contains a relatively large amount of pus. This group lives happily in this environment and is with difficulty separated from it. They tend not to be ultra destructive but may reinfect other portions of the structure or invade the whole kidney producing pyelitis, pyelonephritis, pyonephrosis with complete destruction of the kidney. They may as other organisms do, pass through the kidney without material damage to it, and be completely eliminated, or they may not produce sufficient lesions in the tubules to be of any consequence, exert-

ing their force upon the pelvis, there constructing a high or low grade acute or chronic pyelitis. As a rule they do not demand major surgical treatment, are amendable to medical treatment with the formaldehyde producing drugs, when used with the proper adjuvants. Pelvic lavage with antiseptic solutions, silver nitrate 1% being the most efficient is recommended by some very good authorities. Lavage can only act upon the bacteria in the pelvis of the kidney, and that feebly, it has some drawbacks, requiring skill in the use of the urethral catheter, and cystoscope. Personally I have found that it is not always an easy

The Tubercle Bacillus Group.

The tubercle bacillus attacks the convoluted tubule and is more antagonistic than the colon group, producing decided lesions; may or may not reach the pelvis, but invariably does so, producing marked inflammation, tends to attack the apex of the pyramids, a characteristic; reaches the cortex through the intertubular tissue and may involve other areas by extension, or through lymphatic channels be carried to the opposite pole. There is usually marked interference in renal function, urine early presents the bacteria and blood, but no pus, unless there be a mixed infection. Cures



University Hospital, Omaha, Opened for Patients Sept. 3, 1917.

matter to secure enough dilatation of the bladder to make a urethral cathertization, and have also found it very difficult to get the cooperation of my patients and am inclined to believe that others meet with the same difficulty. Vaccines have been recommended for nearly everything in the category of medicine and are one of the agents used in the treatment of this infection by very good men. Regardless of what treatment is used bacteria are seldom entirely eliminated, and once infected with the colon typhoid group one is pretty safe in saying, always infected.

are possible but not probable, except by caseation or nephrectomy.

Mixed Infections.

As might be supposed, any number of combinations of symptoms and lesions with all the varied puzzling urinary and clinical findings are registered in this type. It is folly to try to make any definite statement further regarding them. Any one doing culture work knows how difficult it sometimes is to separate mixed growths or even prove mixed growths, as one type is frequently lost, some-

times by transmutation and this same thing holds true in laboratory work for urinary infectious organisms. In the colon and tubercular group of infections I have found the only assets of value to be a complete history my cystoscope, ureteral catheters and laboratory. In fact I should hesitate to make a diagnosis of any infective kidney lesion without the use of these agents.

So far in the subject barring a few differences in nomenclature and possibly some differences as to groups infecting special areas, there is a fairly unanimous agreement. The rough water is the portals of entrance to the kidney. Here one must steer carefully to avoid breakers of protest from various supporters of one route or another and he who has any decided opinions must clear his decks for action. Personally I am lost in the maze of conflicting testimony. I have done some work endeavoring to satisfy myself but have failed to come to any positive conclusion.

Portals of Entrance.

Portals of entrance may wisely be divided into direct and indirect routes.

Under the direct route I refer to the ascending infection. I note that some differ in the application of the term "ascending." As I shall construe it to mean the ureter cavity, it will eliminate any misunderstanding. This is the old, old road as taught by our preceptors. It is interesting to note that as early as 1886 there were in the literature references made to means of infecting the kidney other than by the ureter ascension. There are a number of elements that must be present to account for a logical explanation of the direct ascending path of invasion. There must be a cystitis with trauma to the mucous membrane, a column of urine, and a reverse peristalsis, which judging from other hollow organs is dependent upon an obstruction below the point of contraction. Years ago it was demonstrated by injection of infective bacteria into the bladder, that a pyelitis or pyelonephritis was not possible with an intact bladder lining. Bauereisen while restricting his findings to the tubercle bacillus found this to be true, confirming the work of Melchior and Rovsing as to other bacteria, but he made one more condition, the obstruction of the ureter. Any one who does cystoscopic work is confronted with bacteria in the urine following instrumentation, but unless there has been traumatism of the bladder lining they

disappear quickly. Eisendrath and Schultz in their experiments injected emulsions of organisms into the bladder of animals under precautionary methods, and with as nearly natural pressure as possible, later making serial sections of the ureter and kidney to find none of the injected micro-organisms present in the sections. Sugimura showed the muscularis and adventia of the lower third of the uteter to be constantly involved, the mucous membrane usually escaping infection, in all cases of acute cystitis. Again the experiments of Draper and Braasch failed to produce an ascending infection under conditions that were considered normal in pressure and introduction, which tends little support, and leaves us about where we began with this mode of entrance. I believe as others do, that in cases of obstructed ureters or bladders, with damage to the mucosa, infection may take place by the ascending route, however, there are so many handles to this method, that one feels better satisfied with the more simple way, which is offered by the indirect course.

Indirect Portals.

Under this heading we have two paths, the blood and lymphatics. It is with fear that I mention the last named method, knowing how little evidence has been offered to support the assumption. It is well not to be dogmatic, but offer it to you for consideration and with "watchful waiting" it may survive.

Eisendrath and associates are the most valient supporters of the lymphatics as probable carriers for infections from the bladder and genital tract. They have offered some very interesting evidence to support their contentions. Their experiments upon dogs by infecting the bladder showed round cell infiltration, involvement of the peri uretral, intra pelvic, intra renal lymphatics while at the same time the blood findings were negative. One is lead to believe from their reports that they found a direct communicating lymphatic route in the peri uretral lymphatic chain. If we accept this finding or theory as correct it makes a tenable position. I have found it impossible to secure any confirmation or any other worker who accepts a finding so broad. Cabot aptly states that it is contrary to every other law of lymphatics and blood streams, as no blood vessels course in the same direction, and this is given weight if we view the formation of

lymphatics, and accept Sala who places the first lymphatics close to the veins, a finding being confirmed by others. Bauereisen reports an anastomosis between the lymphatics of the internal genital tract and those of the bladder and ureter. This is not necessarily supportive. For years it has been accepted that blood vessels are the primary absorbents. Infection reaching the perivascular space may as well enter the blood stream as the lymphatic channels. It is admitted that the lymphatics of the upper ureter drain into the pelvis of the kidney, and further Sakata finds that there is an upper uretral lymphatic system connecting with the lymphatics of the lower ureter and bladder, but that this connection is made up of several units or broken links, connecting indirectly, which makes a difficult transmission. The superficial and deep lymphatics of the fatty capsule drain toward the diaphragmatic chain, and are eliminated as factors. Francke insists that there is a lymphatic communication between the ascending colon and the right kidney, which as an anatomical fact is of value, but as a route for infectious germs is difficult to harmonize with findings of those who have demonstrated that infective organisms and foreign proteoses other than bacterial products, in pathological states of the intestines and peritoneum rapidly reach the blood stream through the lymphatics provided that the thoracic duct is closed.

The Blood Stream.

As early as 1886 evidence was submitted to show that renal infections occurred by the blood stream if the kidney structure was damaged, which was later confirmed by other workers. Before this it appears, although I am unable to find the exact date, that it was admitted that some bacteria passed through the kidney by way of the excretory apparatus having been carried there by the blood. Continued work showed an increasingly larger number of organisms capable of producing, bacillemia and baciluria. These data did not settle the question, for soon there were those who admitted that infections of the kidney were possible by the blood, but that only a class, the coccus group produced kidney lesions by that route and that the colon group, were ascending in character. Orth in 1893 said that he could not conceive of bacteria reaching the tubules in the pyramidal zones by any other method than through the blood. Cabot and Crabtree are at present the most

ardent supporters of the hematogenous infection of the kidney in the majority of cases, by all classes of bacteria, and have a mass of clinical and research evidence to sustain their position. They too are very decided in their views that there is a distinct elective difference in the points of attack made by the coccus and bacillus group, and the lesions produced. The very frequent metastatic infections of kidneys, the focal infection work of Billings and Rosenow, all of which when viewed from the point of simplicity of understanding of our clinical findings, it is more logical to credit the blood as the carrying tissue, than to conceive of the special conditions necessary for organisms to gain entrance through the direct route or indirectly by way of an intricate net of lymphatics. This is as I view the field. The published reports and records are strong evidence in favor of the blood stream. What changes may take place or be made by other research work yet unreported, is awaited with expectancy. It is well to be open minded in the consideration of the matter, ready to receive any tenable premise that may be established.

I have endeavored to be fair to all concerned in this resume. I have drawn upon all sources at my command. I mention a few authors having endeavored to eliminate personalities as much as consistent, preferring to attach an extended bibliography which may be consulted by others interested in the subject. It is sometimes difficult to place credit where it actually belongs, and in using the method which I have, I feel that I am giving every worker equal recognition for the labor he has performed. My endeavor has been to present the various phases of the question, as briefly as possible; to produce a more intensive study of the subject classifying them in groups, thereby simplifying the study; to present the various avenues of infection that prophylactic measures might be instituted; to encourage a systematic and careful examination of the urine in all diseases and more especially microscopical examinations in all urines where focal infections may exist in the individual; to show that the prognosis may depend very greatly upon the type of infection, and by the same token our management of the disease should be governed accordingly, and a plea for the recognition of the tremendous possibilities of permanent injury to the kidney by catheterization of the bladder and cystoscopy unless

strict surgical principles are followed with the avoidance of traumatism to the bladder or urethral mucosa.

Bibliography.

- Anatomy: Cunningham, Morris, Gray and Deaver.
 Aschoff: Pyelonephritis, 1893.
 Balfour: Tuberculosis of the Kidneys. North-western Lancet 1911.
 Braasch: Significance of Vesical symptoms in the diagnosis of Renal Conditions. American Gynecological Society 1915.
 Braasch: Clinical observations from 203 patients operated on for Renal tuberculosis. Journal, A. M. A. 1912 lviii, 397-401.
 Brown, L.: The significance of Tubercular Bacillus in the Urine. J. A. M. A. 1915, lxiv, 886.
 Brewer, G. E.: Pathology, Diagnosis and Treatment of acute unilateral septic infarcts of the kidney, N. Y. M. J. 1905, 11, 232.
 Brewer, G. E.: A rare type of unilateral, hematogenous infection of the kidney. Yale Med. Jour. 1911, xvii, 237.
 Brewer, G. E.: The present state of our knowledge of acute infection. J. A. M. A. 1911, lvii, 179.
 Brewer, G. E.: Acute Hematogenous Infection of the Kidney, Am. J. URO. 1913, lx 549.
 Bailey: Nephritis and production of amyloid disease, in rabbits by repeated intravenous injections of living colon bacillus. J. Exper. Med. xxiii, 773.
 Bauereisen: Ztschr. F. gynak. urol., 1914, lv, i.
 Billings: Focal Infections and systemic diseases, principles involved in, 1916, J. A. M. A. lxvii, 847.
 Bentley: Pye in Infancy. Lancet-Clinic., cxv., 10.
 Cabot and Crabtree: A classification of Renal Infection with particular reference to treatment. Boston M. & S. Jour. 1916, clxxiv, 780.
 Cabot and Crabtree: Etiology and Pathology of Non-Tuberculous Renal Infections, Surg. Gynec. Obst. xxiii, 495 (Extensive Bibliography attached).
 Crabtree: Etiology of Kidney Infections. Lancet Clinic, ccxv, 96.
 Crabtree and Cabot: Colon Bacillus, Pyelonephritis, its nature and possible prevention, J. A. M. A. lxviii, 589.
 Caulk: Diagnosis of kidney infections, study of 182 cases. Lancet-Clinic, cxv, 99.
 Churchman, J. W.: Notes of the Examination of the urine for tubercle bacilli, Am. J. Med. Sc. 1914, cxlviii, 722.
 Churchman, J. W.: Acute unilateral hematogenous infections of the kidney. Annals of Surg. 1912, lvi, 8181.
 Clark, W. B.: Paths of Infection of the urinary tract. Clinical Journal, 1911, xxxviii, 177.
 Draper and Braasch: The function of the uretro-vesical valve. J. A. M. A., 1913, lx, 20.
 Daniels: Cystoscopy in diagnosis and treatment of pyelitis, cases illus. Cause of renal colic. Interstate Med. Journal, xxiii, 1116.
 Depuys: Pyelitis and early childhood. South. M. J., ix, 197.
 Eisendrath and Kahn: Role of Lymphatics in ascending renal Infection. Jour. A. M. A., lxvi, 561.
 Eisendrath and Schultz: Lymphogenous ascending infection of the urinary tract. 1916 J. A. M. A., lxviii, 540.
 Fadeley: Infections of the Kidney. New Mex. Med. Jour. xvi, 113.
 Foote, Jas. S., Pathologist Creighton University: Personal communication.
 Francke, C.: Eitologie der Koli Infektionen, Arch. F. Anat. U. Phys. 1910-11, Berlin, klin. Wschnschr., 1911 xlvi, 1973.
 Hess: Mitt. a. d. Grenzgeb. D. Med. u. Chir. xxvi.
 Hume and Logan: Acute Infections. South. M. J. ix, 633.
 Harris: Acute Kidney Infections in pregnancy and puerperium. M. J. Austral. ii, 291.
 Hoffman: Non-Tuberculous Kidney Infection. Ken. M. J. xiv, 568.
 Honeij, J. J.: Leprosy, Presence, of acid fast bacillus in circulating blood and excretions. J. Infct. Dis. 1915, xvii, 376.
 Howells: Physiology.
 Jefferys, W.: Infection of Urinary Tract of Children by coli organisms. Quart. J. Med 1910 lv, 268.
 Johnson, C. C.: Private Records.
 Kumita: Arch. f. Anatom. 1909.
 Koll, I. S.: An experimental and clinical study of colon bacillus infection of urinary tract. Tr. Am. Urol. Assn., 1911 v1, 242.
 Keyes: Mechanics of Kidney Infection. Lancet clinic, cxv, 121.
 Kreisel: Some forms of Kidney Infections. Ill. M. J. xxix, 168.
 Kretschmer and Gaards: Lavage in chronic colon bacillus pyelitis, J. A. M. A. lxvi, 2052.
 Lucas: Study of peristaltic movements of ureter by graphic methods. Am. J. Physiol. 1906, xviii, 392.
 Mueller: Arch. F. Klin. Chir. xcvi.
 MacCallum: Text Book of Pathology.
 Orth: J. Path. Anat. 1893. ii, 65.
 Osler: Practice of Medicine.
 Ross: Pyelitis in Children, Penn. M. J. xix, 651.
 Peyton: Pyelitis, symptomatology, diagnosis and treatment. J. Florida Med. Assoc. iii, 193.
 Rosenow, E. C.: Elective localization of Streptococci, J. A. M. A. lxv, 1687.
 Quinby, W. C.: Pyelitis in Children. J. A. M. A. lxviii, 591.
 Smith: Pyelitis, mode of Infection. A. J. Dis. of Children, xii, 235.
 Schmidt and Aschoff: Die Pyelonephritis. Jena. 1893.
 Sweet and Stewart: Ascending Infections of the Kidneys. Surg. Gynec. and Obst. 1914, xviii, 460.
 Sohmer: Focal Infections. Clinical observations and deductions. Journal-Lancet xxxvi, 247.
 Schmidt: Urine Stasis in etiology of pyogenic kidney infection. Lancet-Clinic, cxv, 118.
 Sala, L.: Recherche Lab. di anat. Norm. d. r. Univ. di. Roma. vii, 99-00.
 Sabin, Florence R. Method of growth of the lymphatic system. Science, xlv, 145.
 Sakata, K.: Ueber den Lymphapparat, des Harnlieters, der Neiren, Arch. f. Anat. u. physiol, 1903.
 Sugmura, S.: Ueber, die Beiteiligung der Ureteren und den akuten Blase. Nentzuedungen, u. s. w. Virchows, Arch. r. Anat. 1911, cvi, 20.
 Theile and Embleton: Paths of Spread in Bacterial Infection. Proc. Roy. Soc. London, 1913. vii, 69.
 Walther: Bilateral Pyelitis, due to coli communis. New Orleans Med. and Surgical Journal, lxviii, 644.
 West: Pyelitis Occurrence during course of infections diarrhoea. Journ. Florida Med. Assoc. iii, 193.

Blood Transfusion in Surgical Conditions.*

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I have chosen the subject of blood transfusion as I know of no one therapeutic measure by which so many lives can be saved as by this procedure when judiciously used. Up until a few years ago the technic was so difficult and the dangers so great that it was only used occasionally, and then in exceptional cases. But, with a better knowledge of the action of iso-agglutinins and iso-hemolysins, and the simplicity of testing the blood of the donor and recipient for these substances; and since the sodium citrate method has become known, transfusion becomes an easy operation, and should not be, as in former times, limited to a few surgeons who were expert enough to make an anastomosis between the artery of the donor and the vein of the recipient.

The operation of transfusion, including the testing of the blood, can be well done by any intelligent practitioner. It should be looked upon, not as an occasional operation, but one that should be done frequently.

In the literature of medieval times have been recorded now and then cases of transfusion. Probably the best known of these was that of Pope Innocent VIII, (1) whom we are told was transfused with the blood of three young men. The amount of blood taken from the boys was in such quantity as to cause their death. The pope was not benefited by this treatment and died shortly afterward.

The method of this transfusion is not stated, but as Harvey's discovery of the circulation of the blood was not until 1628 it must have been by an indirect method.

Harvey's discovery stimulated the profession to attempt the transfusion of blood from one person to another, and also from the lower animals to man. In the latter half of the 17th century Denys in France reports a number of experiments which he made with blood from the lower animals, transfusing it into man. Some of these experiments were very successful. A contemporary of Denys was Lower (2) of England, who did a great deal of work upon dogs. He described minutely a technic for transfusion by the use of quills, which in our day have been replaced by the cannula.

Then for almost two hundred years nothing was heard of blood transfusion. Between 1850 and 1875 there was a revival of this therapeutic measure in the German laboratories. Eulenburg and Landois were among the investigators. Landois was one of the first to use tubes and cannulas for direct transfusion. In 1875 Landois published his observations and experiments in an article entitled "Die Transfusion Des Blutes." In our own country Halsted (3) was the pioneer in doing blood transfusion, his first contribution upon this subject appeared in 1884.

There have been three methods advised for the transfusion of blood. The first or direct method consists in the suturing of vessels of the donor and recipient, or in placing a cannula or tube connection between the vessels. The suture method was used by Carrel (4) but the technic is so difficult that it was impractical. The cannula method was first used by Lower of England, and in our time popularized by Crile (5), Elsberg (6) and others. The cannula was either coated with parafine or used in such a way that none of the tube was exposed to the blood current. By this means the clotting of the blood was prevented.

The second, indirect or syringe method, consists in the withdrawal, by means of a syringe, of blood from the donor and at once introducing the blood into the veins of the recipient. Parafine coated vessels, into which blood is collected have been used, the blood being taken from these by means of syringes, and the injection made. This syringe method was first described by Von Ziemssen (7) in 1892, and at the present time still has some advocates.

Percy's (8) "indirect, closed method" consists in the use of a large glass tube coated inside with parafine and having a capacity of 900 cc's. The blood is drawn into the apparatus by the mouth of the operator through a tube attached to its distal end instead of a glass piston (as in the ordinary syringe).

The third method is where the blood of the donor, upon being withdrawn, is mixed with some substance which prevents clotting, and then transferred to the recipient after the same manner as the giving of a saline intravenously.

The two chemicals which have proved the most satisfactory for mixing with the blood are herudin and sodium citrate. It was

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known for a long time that sodium citrate prevented the clotting of blood, but it was thought to be toxic if used in the amount necessary. Several serious and even fatal results were reported after its use.

About two years ago this method was put on a firm footing by the publication of Hustin (9) in Brussels, and Weil (10), and Lewisohn (11) in this country.

There are a number of objections to the first or direct method of transfusion. To do this it takes special skill, as the vessels of the donor and recipient must be laid bare. The smallness and delicateness of the cannulas makes it especially difficult to introduce them into the vessels. It is necessary to obliterate a large artery of the donor like the radial, which is to be thought of. Another point against the direct method is the difficulty of telling the amount of blood transfused. One must also take into account the psychological effect of the operation upon both donor and recipient. The transfusion of the blood by the direct method is, to my mind, a most delicate and trying surgical operation.

The objections to the second, indirect or syringe method, are the difficulty of technic, the number of trained assistants required and the danger of clotting.

The only thing which recommends the first and second over the third, is that the blood is transferred without being mixed with a foreign substance as in the citrate method. But, unless the substance added to the blood is harmful to the patient this should be no objection.

Now, in the third or citrate method I believe we have an ideal means of transfusing blood. A number of hours or days can elapse between the time of drawing the blood and its injection. It is true that blood which has been kept for several hours or longer may produce some anaphylactoid symptoms, but these are mild and so far have not been serious.

The blood when mixed with the sodium citrate makes a .2% solution, and if 1000 cc. of blood are given 2 grams of (sodium citrate) the drug will be injected, and the toxic dose for an adult is in the neighborhood of five grams.

One theoretical objection to the use of citrate is that it might increase the coagulation

time of the recipient's blood, and, of course, this would only be an objection in patients who are having an internal bleeding as in hemorrhages occurring in typhoid, or from the stomach or lungs, etc. Practically, however, the coagulation time is not increased and some observers believe that it is decreased.

Another objection has been raised that during the transferring of the blood there is a chance for organisms to contaminate the mixture, but this amounts to nothing, for even if a few organisms are present they will be taken care of by the blood of the recipient unless there is clotting or other undissolved material to assist them in forming emboli.

The real danger in transfusion, aside from the transmission of disease, from donor to recipient, is the fact that blood contains certain chemical bodies known as agglutinins and hemolysins. The prefix iso is applied to agglutinins and hemolysins in the same species. If a transfusion is done without first testing the blood for these substances there is danger of agglutination.

The nature and action of the iso-agglutinins and iso-hemolysins was first worked out by Landsteiner (12) in 1901, who classified all individuals into three groups according to the action of these bodies. This grouping was found to be incomplete. It was used, however, until 1910 when Moss (13) classified all persons into four groups. In sixteen hundred examinations by Moss, every patient was found to belong to one of the four. In 1907, three years previous to Moss' work, Jan Jansky (14) published a classification identical with the grouping of Moss. However, this fact was unknown to Moss when he published his observations in 1910.

The iso-agglutinins remain constant and do not vary. The iso-hemolysins vary from time to time. Hemolysis never takes place without agglutination. It is the iso-agglutinins and not the iso-hemolysins that we depend upon in our examination.

Every serum contains an anti-hemolysin which protects its corpuscles from being hemolysed by another serum. The iso-hemolytic bodies may be so strong as to mask the agglutination, and Brem (15) reports such a case in which he was lead into error in the grouping and had serious symptoms following the transfusion. This can be prevented by adding a little of the serum of the

patient whose corpuscles are being tested, or better still by watching the test from the beginning, for agglutination always preceeds hemolysis.

By means of the blood examination we can know exactly, and with mathematical certainty, to which group the blood of the donor and recipient belong, which groups are harmonious and which antagonistic.

Into group I are placed all individuals whose serum does not agglutinate any corpuscles and its corpuscles are agglutinated by all other sera but its own. To this group belong about ten percent of individuals.

The serum of group IV agglutinates all other corpuscles but its own and its corpuscles are agglutinated by none of the sera. To this group belong about forty-three percent of all persons.

To groups II and III belong those individuals whose sera agglutinate the corpuscles of group I and whose corpuscles are agglutinated by the serum of group IV.

The serum of groups II and III agglutinate the corpuscles of each other, so that the groups II and III act toward each other and toward groups I and IV identically the same. Moss in his original classification, evidently took the one being the more numerous and called it group II, which represents about forty percent of all individuals, and group III only about seven percent.

By having a known member of group II or III any other unknown blood can be put into the proper group, e. g., we have known II, we find that his serum agglutinates the corpuscles of the unknown, the unknown must belong to group I or III.

Then we find that the corpuscles of known II are agglutinated by the serum of the unknown. This could only happen from a III or IV, so that the unknown belongs to group III, because that responds to the two tests.

In order to be able to test out and properly group the patient, one must have at his command a known II or III. This can be either gotten from some laboratory that already has it, or one can easily work it out for himself. It is as follows:

The serum of an individual (A) is tested against the corpuscles of others until it agglutinates one of them. This one we will name B. (If it should not agglutinate any corpuscles then you are dealing with group I.

Then use some other individual). The patient's (B) corpuscles that have been agglutinated must belong to I, II or III, as group IV's corpuscles are not agglutinated.

Now if we take the serum of this patient (B) (that belongs to groups I, II or III) and test it against the corpuscles of other individuals and it agglutinates any, it must be of group II or III. (If it should agglutinate none it must belong to group I and we would have to get another serum whose corpuscles are agglutinated by the first patient A.)

Now knowing that the serum of groups II and III agglutinate each others corpuscles it is an easy matter to find a half dozen that belong to these two groups. The more numerous must be group II as they occur about six times as frequently as group III.

Blood is aseptically removed from a vein at the bend of the elbow, and two drops are placed into a small test tube which contains 1 cc. of a 2% solution of sodium citrate in a physiological salt solution. The rest of the blood is placed in another test tube which is allowed to stand for sometime in order for the clot to separate, or which is still better is centrifuged.

The blood is taken from a patient of a known group II or III, the same process is repeated on the unknown patient. Two platinum loops of the serum are mixed on a cover glass with one loop of emulsion of the corpuscles; in the first instance, using the serum of the known and the corpuscles of the unknown, and in the second instance the corpuscles of the known and the serum of the unknown. This is examined by the hanging drop method and agglutination is observed to usually begin in about a minute. We have never found it to occur later than five minutes.

There are no border line reactions. It is always markedly positive or negative. The diagnosis can be made with the naked eye, for when agglutination occurs a red precipitate, brick-dust like in appearance, is easily seen through the cover glass.

It is convenient to keep in the laboratory some known serum and corpuscles and the serum when sealed in small capillary tubes may be preserved for several months, but the suspension of corpuscles are so broken up that they can not be used at the end of forty-eight hours time.

It has been worked out by Dr. Wohl, in

our laboratory, that by adding 1/10 of a cc. of formalin to 100 cc's. of the sodium citrate and salt solution the corpuscles will be preserved indefinitely, at least, we have some in the laboratory which have been preserved, thus treated, for three months.

There is a wide field for the use of blood transfusion in the practice of internal medicine. In some conditions definite results have been attained and in many others experimental work is being done at the present time. I will confine this paper to the indications for transfusion in surgical conditions. We will not go into the indications in detail, but rather sum them up in a general way.

Every patient who has lost a considerable amount of blood and an operation is about to be undertaken should be transfused. An example of this is a crushed injury in which there has been not only a loss of blood but shock. If there is active hidden bleeding going on at the time, then the operation should be done first and the bleeding point checked, after which a transfusion should be given. Instances of this kind are seen in ruptured extra-uterine pregnancy and gun-shot wounds of the abdomen, etc.

Transfusion, on patients who are very anaemic, should be done before every serious operation. For example, in fibroids of the uterus, gastric ulcer, carcinoma of the rectum and stomach, splenectomy for pernicious anemia, and splenic anaemia. If there is no emergency about the operation it is wise to do more than one transfusion.

Patients who have had serious operations and lost a large amount of blood should be immediately transfused after the operation and before any symptoms arise. Patients having symptoms of operative shock should be transfused at once.

While I believe that in the uncomplicated traumatic shock, transfusion is of little avail, but if there has been a severe operation the hemorrhage is a factor in causing shock in all of these cases, benefit is certainly derived from a transfusion.

We know that the injection of physiological salt solution is of very little benefit in shock. It may raise the blood pressure momentarily, but the fluid rapidly escapes into the surrounding tissues and the blood pressure falls. This is not the case with a blood transfusion, the blood being a colloidal solution, remains in the vessels.

Transfusion may be used when it is not necessarily a life saving procedure. It hastens convalescence and guards against post operative complications such as pneumonia, phlebitis and wound infection.

In war surgery one should find ideal conditions for blood transfusion. A very large percentage of deaths of the wounded in battle are due directly or indirectly to the loss of blood.

In training camps every soldier has undergone a rigid physical examination. A Wassermann could be done on all, and each grouped as to his agglutinins. Then when blood was needed it could be quickly procured; in fact, during a battle, blood of the different groups could be collected for immediate transfusion upon arrival of the wounded at the field hospital.

Having decided upon doing a transfusion and having selected a suitable donor, (by a suitable donor is meant one who is in perfect health), a young adult who has no organic disease, who has a negative Wassermann and negative tubercular history, and whose agglutinins place him in the same group as the recipient.

It has been found practically that the main thing to be avoided is the using of a donor whose corpuscles are agglutinated by the serum of the recipient, and it is a negligible factor if the serum of the donor agglutinates the corpuscles of the recipient, for it has been noted that the recipient's serum in such a case contains enough anti-agglutinins to prevent any agglutination.

Therefore, in an emergency where it is difficult to get a donor who belongs to the same group, as might happen if the recipient belongs to the rare groups I or II, a group IV may be used as a donor for any patient. Any patient may be used as a donor for group I. Groups II and III can only be transfused from a donor of IV or their own group.

The technic for obtaining the blood is as follows: In the middle of the arm of the donor is placed a tourniquet, just tight enough to obstruct the venous circulation. The region of the elbow is cleaned and a large sized needle like an aspirating needle, (about gauge 10 with short point) is inserted. To the needle is attached about four inches of tubing which, with the needle, has been previously soaked in a citrate solution.

This needle is plunged into the most prominent vein at the middle of the elbow. We have found it most difficult to puncture a vein with as large a needle as is necessary to use, but by passing an ordinary cambric needle just through the edge of the vein to steady it, the large one can easily be plunged into a moderately small vein.

I find no difference whether the needle is passed in proximally or distally. The blood usually flows in a good stream. If it stops flowing either the needle is stopped or is out of the vein, or the tourniquet is too tight, shutting off the arterial circulation.

The blood is allowed to flow into a graduate holding 1000 cc's. into which has been poured 25 cc's. of a 2% sodium citrate in physiological salt solution, and as the blood flows out into the graduate, gently stir with a glass rod. When this mixture reaches 250 cc's. another 25 cc. of sodium citrate solution is added and when the amount in the graduate reaches 500 cc's. if more blood is to be removed then another 25 cc. of citrate solution is added, so that for each 225 cc. of blood, 25 cc's. of citrate solution is added. The tourniquet is removed, needle taken out and a bandage applied.

The blood removed is now taken to the recipient, and inasmuch as most patients requiring transfusion have not prominent veins, we have always found the operation more easily done by cutting down on the vein of the recipient and introducing a small cannula into the vein, having poured the blood of the donor into an intravenous salt solution apparatus, (which has been previously tested to see that it is in good working order by allowing 100 cc's. of normal salt solution to run through) after which the apparatus is connected to the cannula and the blood allowed to run in slowly.

If the blood has to be transported, or some time has elapsed between the taking of it and its injection into the recipient, it should be warmed to the body temperature.

This technic of a blood transfusion is simple, can be easily done by the general practitioner as well as a surgeon, and does not require a hospital or anyone especially skilled. We have had no symptoms worthy of mention following our blood transfusions. Our results have been most gratifying.

It was formerly thought that a member of the family or a near blood relative would suit

better for a transfusion, but with the study of iso-agglutinins we find that this is not the case, so that we find it convenient to use professional donors. We keep on hand several people of the different groups, and when a transfusion is to be done, the patients' blood is grouped and a suitable donor selected. One has no trouble in getting plenty of good subjects who are willing to give 500 or 1000 cc's. of blood for a small sum of money.

If a transfusion is to be done out of the city, blood can be taken from one of the professional donors of group IV, and the patient transfused at a distance with perfect safety.

As to the harmlessness of the removal of blood, you know the life of the different corpuscular elements of the blood is very short and regeneration occurs very rapidly. Within some twelve hours after the removal of 500 to 1000 cc's. of blood, the volume regains its normal, due to the abstraction of fluids from the tissues, and the number of red corpuscles and hemoglobin more slowly reaching the normal in from a few days to a few weeks.

Lately several men have stated that after a transfusion, the donor should not be used again without another testing. None of our cases have shown any change in the donor and recipient, but such a change might occur due to the development in the blood of the recipient of immune bodies against the corpuscles of the donor. In other words, new iso-agglutinins and iso-hemolysins.

I only wish to mention "vaccination transfusion" which I believe promises much as a future treatment of many infectious and contagious diseases.

Bibliography.

- (1) Villiari: Life of Savonarola.
- (2) Lowthrop: The Philosophical Transactions and Collections of Medical and Philological Papers, London, 1731.
- (3) Halsted: Refusion in the Treatment of Carbonic Oxide Poisoning (Annals of Anat. and Surgery, Jan. 1884).
- (4) Carrel: Numerous Publications.
- (5) Crile: Hemorrhage and Transfusion. (Appleton, 1909).
- (6) Elsbury: Simple Cannula for the Direct Transfusion of Blood (J. A. M. A., 1909).
- (7) Von Ziemssen: Munch. Med. Wochnsch. 1892.
- (8) Percy: Journal of Surgery, 1917.
- (9) Hustin: Ann. et Bull. Soc. Med. et Nat. Bruxelles, 1914.

- (10) Weil: Richard J. Sodium Citrate in Transfusion of Blood (J. A. M. A., 1915).
- (11) Lewsohn: Medical Record, 1915.
- (12) Landsteiner: Uber-Agglutinationerscheinungen Normalen Menschlichen Blutes-Klin. Wehnsch. Wein 1901-XIV P1132.
- (13) Moss: Studies on Iso-Agglutinins and Iso-Hemolysins 1910. Bull. Johns Hopkins Hosp.
- (14) Jansky: Haematologische Studien bei Psychotikern Klinicky Sbornik.
- (15) Brem: Blood Transfusion (J. A. M. A., 1916).

Discussion.

J. S. Welch, Lincoln.—This is a very good paper and characteristic of the usual thoroughness we see in Dr. Condon's work. If he had brought nothing else to us today than that this is a lifesaving measure accessible alike to those in big hospitals and in home work, it would have been worth while. It is a method that every one of us must learn to put into operation under various circumstances, not alone in our hospitals but in our homes as well. In my judgment there is no comparison between the methods, direct and indirect. The citrate method is safe and simple and so far as I am able to find out it is just as efficient as any of the others. The difficulties of the others as enumerated in the paper, are proof positive to me that for those of us in the rank and file the indirect method is the method par excellence.

A word which I did not hear in the paper in regard to the importance of the use of freshly distilled water. If tap water is used I believe it is safer than old distilled water for the same reason that we have a reaction in the use of salvarsan where water is old. It seems that foreign proteid substances get in and cause a rise in temperature, a high pulse and sometimes a chill. This is not a very serious reaction, as it usually passes away in 8, 10 or 12 hours and there is apparently no less benefit from the transfusion. The work of Brem and Moss and Sweet and the other investigators in this field is splendid and it has blazed the trail for us but it is rather confusing. If you are not familiar with this work already I doubt if you are not now confused by the reading of the doctor's paper. It is harder to describe it than it is to do it, please know that. For you and for me it is proper to know that if you are going to give me blood, your corpuscles must not be agglutinated by my serum and my corpuscles must not be agglutinated by yours. To do this all that is necessary is to collect these two elements from each of us and put them together in a hanging drop preparation. It is safer to inspect these under a high power microscope—it is not obligatory—you can tell it in a country home with a kerosene lamp if you are careful. I should not risk it the first time, but with very little experience, you can see with the naked eye that brick dust color that Dr. Condon describes, if you look for it shortly after they are mixed. A little practice makes it as perfect, I believe, as a microscopic test. I mention this because I want to emphasize the point Dr. Condon made, that this is a practical thing, not to be used in emergencies only, but in many other places. If you can prevent the postoperative complications which come because of lowered resistance, where a lot of blood

has been lost, you have done as important a thing as you have done to stop the flow of blood, be that an ectopic pregnancy or a crushing injury of the extremity.

Professional donors can be had in large centers and it seems to me that the suggestion the doctor has made in regard to war surgery is very opportune at this particular time. The safety of group four was mentioned, and if you have a group four on hand in your community then you need not lose a patient from hemorrhage where you might otherwise, because of the loss of time in obtaining a desired donor. If you are equipped, and you know you have this group four donor you can wash these corpuscles with salt solution and centrifuge them, re-dilute them with salt solution and thus get rid of the offending serum and eliminate the element of danger.

There is another clinical test which we watch for. I do not think the doctor mentioned that, but I have no doubt he watches for it. Suppose you have made a mistake in all this and you begin your transfusion any way and your patient begins to complain of anxiety, compression in the chest—stop right away because that almost always means that you have the wrong donor. That is a little check on your other test. In addition to the indications which the doctor mentioned, I want to refer to infection as an indication. I am not very enthusiastic about this. It offers a big field if it works out successfully. I am not at all sure that blood given to a patient with chronic infection, not to say acute infection, is helpful in any other way except that it helps his anaemia. Now, in a very big clinic, if we could have professional donors who had immunity against various organisms then the transfusion of their blood in infested cases would come to be a splendid thing, but I do not think today it is very helpful. In acute infections I doubt its usefulness for another reason. I believe you are likely to cause dilation of the heart. The heart muscle, in serious infections, is likely to be weak and flabby and a transfusion might do actual harm.

Again, I want to emphasize one thing in this paper, viz:—that blood transfusion by present day methods is technically practical in the home and small hospital as well as the large clinics. That it is not only a very useful emergency measure but should be thought of as a common treatment for severe anaemia; to lessen shock, shorten convalescence and prevent complications.

MILITARY NOTES.

Dr. R. E. Hall of Fullerton has been called to Fort Riley for service.

Dr. F. W. Scott of Lodge Pole has joined his regiment at Fort Omaha.

Dr. A. O. Specht of Syracuse has received a commission as First Lieutenant in the Army.

Dr. C. N. Merewether of Pauline has been appointed lieutenant in the Medical Corps of the Army.

Dr. H. A. Gerbig of Friend, has received a commission in the Medical Reserve Corps of the Army.

Dr. Harrison of Neligh received his commission as lieutenant M. R. C., and has been called to Fort Riley.

Dr. Charles E. Remy of Ainsworth has been accepted for service in the army with the rank of captain.

Dr. C. A. Yoder of Overton is a member of the Medical Corps of the Army, with the rank of lieutenant.

Dr. R. T. Jones of Edgar received a commission as first lieutenant and has reported at Fort Riley for duty.

Dr. I. C. Munger of Lincoln has been assigned to the medical service at Fort Riley with the rank of first lieutenant.

Dr. C. E. Pinckney of Gretna has been ordered to report to San Francisco for immediate service in the Medical Corps.

Dr. E. O. Weber of Wahoo, with the rank of major, will supervise the medical inspection of the new National Guard Reserve Regiment now being organized by Adjutant General Steele.

Dr. J. H. Mettlen, president of the Knox County Medical Society, has been commissioned as captain in the Medical Officers' Reserve Corps.

Dr. A. L. Lindquist of Omaha has been appointed to take the place of Dr. Stearns as captain of the Ambulance Company number twenty-five.

Dr. W. E. Doane of North Bend received a commission as First Lieutenant in the Medical Officers' Reserve Corps and has been called to Fort Riley.

Dr. O. F. Lang of Falls City, Nebraska, expects to leave soon for Fort Leavenworth. He has received his commission to serve in the Medical Corps of the Army.

Dr. F. L. Frink of Newman Grove, Nebraska, has been commissioned a captain in the medical reserve corps. He has been a practicing physician in that city for the last twenty-five years.

Major L. B. Sturdevant, head of the sanitary detachment of the Fifth regiment, with headquarters in Lincoln, has been honored with the appointment as assistant chief surgeon at Camp Cody.

Custer county physicians enlisted in the medical service of the army are as follows: Dr. W. E. Talbot, Broken Bow; Dr. R. D. Bryson, Callaway; Dr. J. C. Wade, Oconto; Dr. C. L. Wills and Dr. R. P. Higgins of Ansley.

Dr. F. A. Wells, who has practiced medicine at Axtell for the last four years, has been called to Fort Riley. Since the organization of the Axtell branch of the American Red Cross Dr. Wells has acted as secretary.

Dr. N. P. Hansen, who has been practicing at Elk Creek for some time has been accepted for service in the Medical Corps of the Army. Dr. Hansen has had previous military experience and has been commissioned with the rank of major.

Dr. J. W. Thomas, Nehawka's only practicing physician, has been recommended for a commission with one of the ambulance corps to go from Nebraska. Mrs. Thomas, who is a graduate of the Cook County Hospital of Illinois, will prepare herself for a head nurseship in Red Cross work.

NOTES.

Dr. Fred Colbert has located at Gering, Nebraska.

Dr. E. L. Brush of Norfolk has been in Chicago doing special work in surgery.

Dr. Jason of St. Edward has opened an office in Fullerton for the practice of medicine.

Dr. C. E. Palmer of David City spent some time in Omaha recently taking work in obstetrics.

Dr. F. A. Paden of Hartington attended a conference in Chicago relative to the establishment of base hospitals.

Dr. E. A. Pickens who has been taking a post-graduate course in Boston has returned to his home in Benkelman.

Dr. F. J. Kotlar of Torrington, Wyoming, and Dr. Heinrich Holke of St. Louis have located at West Point, Nebraska.

Dr. R. R. Craft who has been practicing in Wymore will move to Exeter where he has bought the practice of Dr. Carl Wagoner.

The Wise Memorial Hospital of Omaha recently received a bequest of \$5,000 from the late Abraham Slimmer of Dubuque, Iowa.

Mrs. Mabel Oaks, widow of the late Dr. Charles Oaks, has been appointed matron at the Wesleyan Hospital at University Place.

Dr. G. H. DeMay of Danbury has located at Stuart, Nebraska, succeeding Dr. Johnson who will move to Lincoln and retire from practice.

Dr. W. C. Robinson of Silver Creek has purchased the practice of Drs. Little and Christy of Clarks, who have joined the army, and will locate in Clarks.

Dr. Ole Grothan of St. Paul, Nebraska, recently had a narrow escape from drowning when his automobile backed off a ferry into the Missouri river at Niobrara.

Chappel, Nebraska, has several cases of smallpox and according to a report from the State Board of Health two hundred and twenty-eight people voluntarily offered themselves for vaccination.

The new hospital of the College of Medicine of the University of Nebraska located at Omaha, opened for the reception of patients September 3d. The first class of the Nurses' Training School will be received October 1st. Formal opening and dedication of the building will occur in October.

The newly commissioned Board of Secretaries of the State Board of Health met in Lincoln, July 24th, for organization with the following results: Dr. W. P. Johnson of Pawnee City was elected president of the board, Dr. C. L. Mullins, Broken Bow vice president; Dr. J. E. Spatz, Fairfield, treasurer; Dr. J. J. Hompes, Lincoln, secretary.

Dr. J. P. Lord, Dr. A. F. Jonas, Dr. Harold Gifford, Dr. A. R. Mitchell and Dr. J. E. Summers, of Omaha, all Fellows of the American College of Surgeons, have been elected to attend a conference, October 19 and 20, at Chicago to standardize American hospitals. The aim of the conference is to eliminate unnecessary operations, incompetence, fee division and systematize operation of hospitals. It is the plan to grade every hospital in the country and to publish the names of the certified ones. Investigation of hospitals has been under way for more than a year.

COUNTY SOCIETIES.

On August 14 of this week the Custer County Medical Society held its annual picnic at Oak Grove six miles east of Comstock. It was the annual outing which the physicians and their ladies look forward to with much pleasure each year. In addition to the big picnic dinner and a general good time socially, an interesting program was carried out, the following subjects being handled:

- "Diabetes," Dr. F. A. McGrew, Comstock.
- "Why I Continue My Affiliation With the Custer County Medical Society," Dr. J. F. McNulty, Taylor.
- "Some Diagnostic Advantages of Spinal Fluid Analysis, with Report on Case," Dr. H. J. Lenhoff, Lincoln.

A discussion of these subjects was indulged in. The Custer County Medical Society now consists of 27 members, which is the largest in its history. It enjoys a membership of five physicians residing outside of the county. Those present at the picnic were: Drs. G. I. Sellon, president; C. L. Mullins, secretary; R. C. and W. E. Talbot, G. E. Pennington, Broken Bow; R. P. Higgins, C. L. Housel, Ansley; A. R. Downing, J. H. Morrow, Merna; F. A. McGrew, Comstock; J. F. McNulty, Taylor; the visiting physicians being C. J. Miller, Ord, and H. J. Lenhoff, Lincoln.

MARRIAGES.

- Dr. Frank Butler Evans and Mrs. Clara C. Sargent were married in Mitchell, Nebraska, August 1st.
- Dr. Will Ivern Shaffer of Gothenburg and Miss Edna Strong of Terre Haute, Indiana, were married at Lexington, August 22d.
- Dr. J. Stanley Welch of Lincoln and Miss Jessie Belle Graves were married in Spokane, Washington, August 18th. They will reside in Lincoln.
- The wedding of Miss Bess L. Payne of Beaver City and Dr. Robert H. Gatewood of McCook took place August 22d. They will reside in McCook.

Abstracts

FROM THE JOURNAL OF NERVOUS AND MENTAL DISEASE
July, 1917.

Carcinoma of the Spine—A Case of Cauda Equina Disease Following Thyroid Metastasis.

By Skversky, M. D., New York City.
House Physician, Montifiore Home and Hospital.

The case to be reported is one of adeno-carcinoma of the thyroid, with subsequent metastasis to the lumbar vertebrae, resulting in symptoms referable to cauda equina compression.

Carcinoma of the spine and the consequent affections of the contiguous nervous structures, although not as infrequent as we are led to believe, has nevertheless received relatively little recognition, when compared, for instance, with Pott's disease or the various other forms of spondylitis.

The author's conclusions are:
Carcinoma of the spine is of more frequent occurrence than we are led to believe and has received

relatively little recognition when compared with Pott's disease, or the various other forms of spondylitis.
Carcinoma of the spine as well as any other part of the osseous system is never primary, but always metastatic. If clinically overlooked, careful post-mortem examination will always reveal the primary site of malignancy. In carcinoma of the thyroid the growth is generally so small as to be overlooked clinically and the metastasis assumes the foreground in the disease picture.

The symptomatology of carcinoma of the spine is varied and obscure, and does not follow any anatomical sequence. Direct objective evidence of disease of the spine is generally absent. Spontaneous bone pains without local tenderness are usually the first manifestations. Most important as well as frequent are the sensory root symptoms which are of a most intense character.

In adults, persistent sciaticas, not responding to the usual therapeutic measures, and particularly when bilateral, should always direct suspicion to disease of the lumbar spine. The so-called "paralgie douloureuse" of Cruvielhiers and Charcot has been accepted as pathonomonic of carcinoma of the spine.

In carcinoma of the spine the disease process generally remains latent for many years. Because of the variable and protracted course, a case of supposed rheumatism, lumbago, sciatic, neuritis or functional spine, is often considered cured, when a mild degree of trauma may serve to precipitate a rapid destruction of the vertebral bodies.

Cord or corda equina symptoms in this class of cases are generally of very abrupt onset and lead to a rapidly fatal issue.

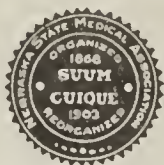
Roentgenology has up to date offered little substantial aid in the early diagnosis of carcinoma of the spine. This may be due to the fact that carcinoma of the bone is osteoclastic, in contradistinction to primary growths such as sarcoma, enchondroma, etc., which are osteoplastic and where the X-ray throws a definite shadow.

The degree of structural involvement of the contiguous nervous tissues is not always commensurate, with the extent of clinical disease. The spinal cord is practically never a site of carcinomatous invasion. There may be extensive cord degeneration without reasonable post mortem evidence of direct pressure of the spinal growth and vice versa as in this case. The question of neurotoxemia must always be considered.

The study of this case is a plea for the more frequent and early recognition of carcinoma of the spine, inasmuch as the course is one of the most dreadful of any disease picture and may be alleviated and possibly controlled by roentgen-therapy.
J. M. A.

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THE NEBRASKA STATE MEDICAL JOURNAL



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A Few Practical Points in the Clinical Interpretation of the Wassermann Reaction and Its Value in Lesions of the Stomach.

Michael G. Wohl, M. D., Omaha.

From Pathological Department, Nicholas Senn Hospital.

The Wassermann reaction has found a permanent place in medicine, yet there are a number of clinicians, as well as laboratory workers, who question the value of a positive reaction when it is unsupported by clinical evidence. Other extremists consider a positive Wassermann as sufficient evidence of the existence of syphilis. Views of such extreme nature are hardly known to parallel other biological reactions that have not entirely disappeared from the armamentarium of the clinician.

What factors are responsible for this ex-

treme difference of opinion? First, the exact nature of the reaction itself is still an open question. That it is not a specific antigen-antibody reaction in the sense of Bordet and Gengou is evident from the fact that we obtain better results employing an antigen from nonleuitic tissue (guinea pig heart) than from an antigen prepared from the spirochaeta pallida, the specific casual agent of the disease. We also know clinically that the strength of the reaction (a four plus or one plus) does not correspond to the degree of immunity, nor to the severity of disease that the patient has. There is a good deal of evidence to believe that the Wassermann reaction bears close analogy to a chemical colloidal reaction.

A second cause that will account for divergent views in regard to the clinical value of the reaction is the lack of a standardized technic. No two men employ the same anti-

*Read before the Nebraska State Medical Association, Lincoln, May, 1917.

gen, hemolytic system, or total volume of the reaction; factors which in themselves possess inherent properties of influencing the end result of the test. (See foot note).

Another important factor is the lack of appreciation by both clinician and serologist that the Wassermann reaction is merely a symptom, and as such constitutes only one link in the entire chain of clinical evidence. Of course, when the reaction is a hundred per cent positive it is strong evidence of syphilitic infection, with the exception of yaws and leprosy, which diseases occur rarely in our climate and can be easily excluded.

However, it is the border line reactions which, taken by themselves, are often misinterpreted. It is unfortunate that particularly in this class of cases the clinician is often in need of a serological corroboration of his somewhat obscure diagnosis. Less chaos would arise if the serologist would make his final report weighing the clinical evidences of the case. When a piece of tissue is submitted for examination it is essential that the pathologist know the clinical history of the case before a correct diagnosis can be rendered. The same applies with equal force when a specimen of blood is submitted to the serologist for the diagnosis of syphilis.

From complete clinical and laboratory records of five hundred Wassermann reactions performed at the laboratory of the Nicholas Senn Hospital certain points impressed us with such regularity that we believe it will not be amiss to discuss them briefly.

In differentiating surgical lesions such as carcinoma, sarcoma, surgical tuberculosis, etc., from syphilitic manifestations, the Wassermann reaction will point to the condition being of leutic nature only when it is strongly positive. We have never encountered a strongly positive reaction in the above conditions where syphilis was not coexistent. The earlier reports that the Wassermann reaction is positive in carcinoma need revision.

In a case of a negative or border line Wassermann reaction, when a suspicious lesion is accessible, we believe it to be a safer plan to excise a piece of tissue for histological examination rather than to wait until the specific treatment will settle the diagnosis. It has been the experience of the Nicholas Senn Hos-

pital that no untoward results followed excision for microscopic diagnosis. The histological examination will prove decisive, and the proper course of treatment will be instituted without any loss of valuable time to the patient. The following cases will illustrate this point.

Case 1. Mrs. McC. Came into the hospital, January 5, 1915. Age 24, family history negative. Had been married four years, had never been pregnant. Two weeks before noticed a hard swelling on the right labia majora. It gradually increased in size and caused but little discomfort. The swelling was hard and about two centimeters in diameter, and the lymph nodes in the right groin were enlarged. From the appearance and location of the growth the enlarged lymph nodes, the age of the patient and a moderately positive Wassermann we concluded we were dealing with chancre. Her physician suggested a small section for microscopic diagnosis but we thought the case so plain that it was unnecessary. She was given neosalvarsan 0.9 gram. and in ten days the dose was repeated. Four weeks later she returned to the hospital. The growth had increased one-half in size; a small section was removed and was found to be a squamous celled carcinoma.

Case II. Mrs. T. Age 26. Came into hospital February 1, 1916. Had had some pains and a little blood at stool for past six weeks. Examination showed a serpiginous-like ulcer extending one centimeter beyond the muco-cutaneous anal margin and extending inside the rectum about two centimeters. The base was slightly indurated, tributary lymph nodes not involved. Wassermann reaction positive, one plus. She was given two doses of 0.9 gram neosalvarsan ten days apart and put on mercury and KI. Two weeks later she returned. The ulcer had increased in size and the pain and discomfort had also increased. A small section was removed from the base of the ulcer and a typical squamous cell carcinoma found. (Fig. 1.)



Fig. 1.

If we constantly bear in mind that a Wassermann reaction is a symptom, then we

Foot Note: Throughout our work the conservative Wassermann technique is employed, except the use of cholesterin used and an insoluble human heart antigen.

shall not be deceived by a negative Wassermann as if the final word had been said in excluding syphilis in a case under consideration, for, as any other set of symptoms, it may or may not be present. It is too well known that the Wassermann reaction is absent early in the primary stage of syphilis, although spirochaete can be demonstrated at this time by dark field illumination. On the



Fig. II. Before Treatment.

other hand we know that a negative Wassermann may occur in active syphilis of the cerebrospinal system, of the vascular system and also in latent congenital syphilis. Alcohol, when injected in considerable quantities, will masque the reaction converting a positive into a negative. (Craig and Nichols, J. A. M. A., 1911, p. 474).

A point of considerable importance is that in some cases of undoubted syphilis the Wassermann reaction will be positive one time

and negative another. (Craig, Journal Amer. Medican Sciences, 1915, Vol. CXLIX, p. 46). This phenomenon is in accord with other biologic reactions, e. g., Widal reaction in typhoid fever, where the agglutinating power of the serum may be very strong one day and become weak or disappear entirely the next day or two. (Kolmer, "Infection, Immunity and Resistance," Saunders & Co., p 274). From a practical point of view this is of great significance since it indicates the utter uselessness of a single negative Wassermann reaction in eliminating syphilis in a suspected individual. What is most curious is the fact that in some cases of malignant syphilis we observed the Wassermann reaction to be negative, as illustrated by the following case.

Case III. Mr. S. Age 27. Entered the hospital April 24, 1915. Had a number of large ulcerations on neck and chest. (Figure 3). Had been under the care of another physician for three months, being treated for tubercular ulcers. The ulcers had progressively become worse. (The patient was a tall,



Fig. III. After two weeks treatment.

hollow chested individual). He gave the history of having had a chancre four years before. (He stated that he did not give this history to the other doctor).

His Wassermann was negative and the section from the ulcers showed them not tuberculous. He was given two doses of neosalvarsan and the ulcers entirely healed in about four weeks time. (Figures II and III).

It is generally accepted that in clinically suspicious cases of syphilis with a negative Wassermann, the provocative administration of protiodide of mercury or neosalvarsan will induce a positive reaction. In our own experience we have never seen a strongly positive Wassermann following provocative anti-syphilitic remedies. We are rather inclined to believe that, as King has tersely expressed it, "Definite proof of the existence of a provocative Wassermann reaction following salvarsan is not at hand at the present time." (Journal A. M. A., Dec. 2, 1916, p. 1671).

The value of the Wassermann reaction in diseases of the stomach has not been given full credit. Syphilis of the stomach was considered to be rare. However, with the advent of modern serological tests and the X-ray, luetic lesions of the stomach are more often recognized. Ewald states (Journal American Medical Sciences, Vol. 149, p. 393, quoted by Morgan) that ten per cent of all cases of gastric ulcer are probably syphilitic in nature. Wassermann reactions are done on every patient of the Nicholas Senn Hospital who presents pronounced gastric symptoms, and from our experience in this we would judge that syphilis of the stomach occurs in three per cent of gastric cases. In our series we have four cases of bonafide gastric syphilis.



Fig. IV. Syphilitic Ulcer.

One case is that of Mrs. M., age 30, whose gastric symptoms and X-ray findings were those of a simple ulcer. However, her gastric contents showed an absence of free hydrochloric acid. A luetin skin test was found negative. Patient was operated upon, ulcer

bearing area excised, and anterior gastro-enterostomy was done. The ulcer extended about four centimeters along the lesser curvature. Patient made good post operative recovery. Three weeks later, however, her gastric symptoms returned; Wassermann reaction was done and found to be a hundred per cent positive. She was put on anti-syphilitic treatment and has gained twenty pounds in weight within three months and has been well since then. The microscopical examination of the ulcer tissue failed to show spirochaeta pallida. However, the blood vessels were thickened and were the seat of distinct endarteritis obliterans, with marked round cell infiltration in the vicinity. (Fig.

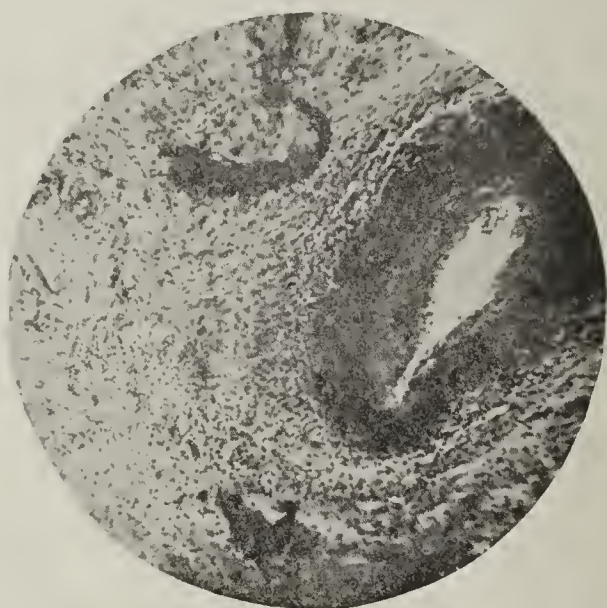


Fig. V. Section of ulcer of stomach showing endarteritis obliterans.

IV, V.) Ulceration is the most common lesion in syphilis of the stomach, but it is the least recognized.

The other three cases presented clinically symptoms of pyloric obstruction, marked loss of weight. A tumor could be felt in the epigastric region in only one case. Hydrochloric acid was absent in two, and normal in one. Their ages were fifty, fifty-five and fifty-three respectively. The last case was examined by X-ray and because of slow emptying time and pyloric stenosis, it was pronounced to be carcinoma. I mention this fact particularly in order to emphasize the importance of correlating both clinical, X-ray and laboratory findings in order to arrive at a definite diagnosis.

Two of these cases were operated upon and in each the lesion was found to be a large

tumor at the pyloric end and enlargement of the tributary lymph nodes. As the condition seemed to be inoperable carcinoma, a posterior gastroenterostomy was done; in one of them a large lymph node was removed from the lesser curvature of the stomach and was found to be of inflammatory nature. The patients made good post operative recoveries. However, they left the hospital with a grave prognosis. They were put on potassium iodide. Six months ago we heard from one of them, who was operated upon in 1906, and he is in good health and carries on his work. The other one was operated on in 1908 and at present is enjoying good health. These two cases had undoubtedly gummatous tumors and had we had the Wassermann reaction at the time, the correct diagnosis would probably have been made.

The lesion in the fourth case was a diffuse syphilitic induration with pyloric stenosis. The postmortem also revealed an aneurism of the aorta and chronic interstitial pancreatitis of probably syphilitic nature.

It is evident from these cases that there are no distinct symptoms of gastric syphilis that would differ from other similar affections of the stomach. The diagnosis is decided by a positive Wassermann and the result of the anti-syphilitic treatment, under the influence of which the symptoms disappear.

Finally it cannot be too strongly emphasized that a patient may beluetice and have a strongly positive Wassermann and yet his symptoms be due to a non-luetice lesion, for instance carcinoma. This fact was impressed upon us recently by a case of Dr. H. Akin. The patient was a negro, forty years of age and admitted to the hospital complaining of pain in the region of the stomach. He had difficulty in swallowing and had vomited. He lost sixty-five pounds in weight within a year. He had never been sick before except for having gonorrhea and chancre four years ago. Upon admission to the hospital his Wassermann was found to be strongly positive and his condition was thought to be a syphilitic stricture of the esophagus. Patient was given anti-syphilitic treatment, but he gradually became worse and died. A postmortem showed carcinoma of the lower end of the esophagus which encircled its entire lumen and the aorta showed typical areas of syphilitic mesaortitis.

Conclusions.

1. When the Wassermann reaction is a hundred per cent positive it invariably indicates syphilis with few negligible exceptions.
2. A negative or border line Wassermann reaction does not exclude the existence of syphilis. In such cases the reaction should be interpreted weighing the clinical evidence of the case.
3. In differentiating surgical lesions such as carcinoma, sarcoma or tuberculosis from syphilitic manifestations, the Wassermann reaction will, as a rule, point to the condition being ofluetice nature only when it is strongly positive. In a case of negative or border line reaction when the lesion is accessible the excision of a piece of tissue for histological examination will prove more decisive than the Wassermann reaction.
4. The value of provocative Wassermann reaction needs further corroboration.
5. Every case of organic disease of the stomach should not be passed without considering syphilis as a possible etiologic factor. A positive Wassermann, the presence of specific lesions in the body, and the therapeutic test will prove the condition to be of syphilitic nature.
6. If a patient has syphilis there is no reason why an abdominal tumor mass or chronic rectal ulcer may not be a carcinoma.

Discussion.

A. Sachs, Omaha.—The paper has covered the ground thoroughly, however, I wish to impress a few practical points. A Wassermann reaction often gives us information that we can not obtain in any other way. Frequently the patient denies having had a lues and yet we find a positive Wassermann. I do not believe all of these patients wish to mislead us, by this I mean there are undoubtedly a number of cases of innocent infection, of which the patient has no knowledge; others may have had an infection years back and were probably told by their family doctor, that they did not have syphilis. I believe that if a routine Wassermann were made in all cases, regardless of who the patient may be, we all would be surprised a great many times at the results. There are frequent clinical manifestations which it would be impossible to interpret properly unless we had a Wassermann to corroborate our findings. If a diagnosis of syphilis is made from the Wassermann alone, I thoroughly agree with the doctor, that the reaction must be a strictly positive one. Visceral syphilis is more frequent than we formerly supposed and the Wassermann has been a great aid to us, as internists, in making these diagnoses. We know that syphilis of the liver gives one of the strongest positive reactions that we have. Syphilis of the stomach is not as rare as we formerly thought it to be and I would like to cite a case to demonstrate this point. I will omit a detailed history and merely state that the patient was a female, age 38, came in with a marked anemia and gastric symptoms. The case was a typical pernicious anemia and was diagnosed as such. The vomiting diarrhoea, etc., were attributed to the lack of H Cl, which we frequently see in pernicious anemia. The stomach symptoms were most marked

throughout the case and were not amenable to treatment. A Wassermann was done and a three plus reaction found. Vigorous antiluetic treatment proved of very little value. The patient died and a post-mortem showed the typical findings of a pernicious anemia, but we also found a gumma in the liver and a gumma at the pyloric end of the stomach. Microscopical sections corroborated the same. This case undoubtedly had a pyloric obstruction and at least a portion of her symptoms were due to the gumma, which we found at the pylorus. Occasionally we see a marked benefit in cases of tuberculosis by giving mercury or the iodides, and the mercurial treatment of tuberculosis was at one time advocated by some. If a Wassermann had been done I am sure it would have been positive in a number of these cases. It is by no means rare to see syphilis and tuberculosis in the same individual and I believe the benefit derived from mercury in tuberculosis, is probably in just such cases.

Arthur L. Smith, Lincoln.—As far as standardizing the Wassermann reaction, this is not necessary, as a four plus is the same by all tried methods. It is in the one plus or the plus-minus serums, that the reports may differ. The more sensitive reagents will bring these out, while with the others there will be a complete hemolysis. The Wassermann in primary syphilis is of little value since the highest percentage of positives is found in secondary syphilis; in tertiary it is less reliable; while in the so-called parasyphilitic conditions the percentage of positive blood Wassermans is much reduced. But in the latter condition, the Wassermann on large amounts of spinal fluid, 1 c.c. to 2 c.c. gives a large per cent of positives. In my experience, Lange's colloidal gold reaction is far more dependable than any other spinal fluid test in parasyphilis. It is a delicate test and must be carefully done, but it will bring out positives when the Wassermann is negative.

In congenital syphilis, the Wassermann is usually positive early, but as the patients grow older the percentage of positive Wassermans decrease. In primary syphilis, the presence of the spirochaeta pallida in the primary sore will make the diagnosis.

In nonsyphilitic cases, suffering from, scarlet fever, malaria, yaws, pellagra and other conditions the Wassermann may be positive. While I do a Wassermann on every patient, I never accept a positive until I have proved it by the therapeutic test.

A. A. Johnson, Omaha.—The Wassermann test has been criticized very extensively but I believe that it is a most valuable test for it has lived several years and many laboratory workers have bungled with its technique. It is only in team work that the best results can be gotten from the Wassermann test. My most satisfactory results are where I have the opportunity of calling the physician that sends the specimen and reporting to him that the specimen is negative or positive and then asking for the history of the case. We do not always agree but in many cases we do. The Wassermann test when positive should be considered as the most important symptom. The test is of the greatest value in the treatment of syphilis. Even where the test is negative physicians should not stop the treatment. The patient should be watched years after the negative

Wassermann test. In cases of tabes the Wassermann is important because if the test is strongly positive on the blood serum it shows an active process to be present and by active treatment this can be checked. Where there is no reaction between the body cells and the organism of the disease the Wassermann test is usually negative and these cases do not respond to treatment.

A negative Wassermann test does not mean the absence of syphilis for the clinical findings should be carefully considered.

M. G. Wohl, Omaha, closing: I wish to thank the gentlemen for the discussion of the paper. Dr. Johnson has well brought out the importance of team work in the proper appreciation of the value of the Wassermann reaction. The clinician will praise or blame the laboratory man depending upon whether he does or does not cooperate with him in the interpretation of the Wassermann reaction.

In regard to a positive Wassermann in scarlet fever and other contagious diseases I would like to ask Dr. Smith how he excluded syphilis as being the responsible factor for the positive reaction and not the scarlet fever, etc. That a patient with scarlet fever might also be syphilitic is too apparent. Dr. Smith, I believe, has not mentioned how strongly positive his Wassermans were in scarlet fever and other contagious diseases, for, as I pointed out in my paper, a one plus Wassermann means absolutely nothing in the diagnosis of syphilis.

If your serum is old and infected or if the sample of blood to be tested is hemolyzed, as is often the case when a specimen of blood is improperly obtained, then the result of the reaction will be incorrect. An important point in obtaining blood for a Wassermann is to boil the syringe and needle in normal saline and not in distilled water, for distilled water will hemolyze red blood corpuscles, which is sufficient to cause a slightly positive Wassermann.

In cerebro-spinal syphilis a Wassermann on the blood alone is insufficient since in fifty percent of the cases it is negative. No nervous case is considered completely examined without a cell count, a Wassermann and a Lange Colloidal on the spinal fluid.



Fig. VI. X-ray of chest showing consolidation of bases of lungs, of syphilitic nature.

Dr. Sachs has brought out an important point in the concomitant occurrence of syphilis and tuberculosis. That syphilis of the lung may be mistaken for tuberculosis has recently been impressed upon us by

a case which lost weight, ran a typical hectic temperature, coughed and expectorated. A diagnosis of tuberculosis was made. Upon admission to the hospital, however, a blood examination showed a four plus Wassermann. There were no tubercle bacilli in the sputum and a Von Pirquet was negative. An X-ray of the chest revealed consolidation of the bases of the lungs. Patient was put on anti-syphilitic treatment and within three months time she gained twenty pounds in weight and all her symptoms disappeared. (Fig. VI).

Popular Consideration of Syphilis. A Plea.*

F. E. Coulter, M. D., Omaha.

The highest service the medical profession can render humanity is the prevention of disease. To relieve suffering or even cure disease, is of minor importance in comparison.

During the past year various portions of our land have been visited by unprecedented epidemics of anterior poliomyelitis. It has been estimated (N. Y. Medical Journal, December 23, 1916, Tilney and Rushmore), that in the entire United States there were approximately 26,000 cases, and in New York City alone, approximately 9,000 cases. The mortality was estimated at from 10% to 20% and perhaps 90% of the survivors were left seriously crippled, but not mentally weakened in any manner—the maiming being of a purely physical character as the rule, and no mental degeneration or defect following.

All will conclude that the above was a most gravely serious situation and demanded the very best effort of health authorities doctors and laymen in controlling the situation. New cases, thirty, forty, fifty and even more were being reported daily for weeks and the death rate during this time seemed appalling and the inhabitants were generally helpless in the face of this great calamity.

It is not a question of surprise, therefore, that New York City during this period should have become frantic from center to circumference. Both laymen and physicians were paralyzed with fright because of the presence of this dread disease and their inability to stay its progress, even for the few months out of the year that it was active. "A most serious situation" we hear some one say and to this, we all quite agree, but pause and consider for a few moments, if you but will, a question we believe to be of far greater

importance, not only to the city of New York, but to the entire nation. This great metropolis of America, just mentioned, has lurking in the blood of 600,000 to 1,000,000 of its inhabitants, if estimated statistics are correct, a disease that will put to shame the recent epidemic of poliomyelitis at any and every stage of its course. We refer to the spirochaeta pallida, the infection of which Osler likens to the "worm that dieth not and the fire that is never quenched." The same author also states (Journal A. M. A., November 27, 1916, Irvine-Page, 1987), that syphilis ranks next to tuberculosis, pneumonia and cancer, from the standpoint of mortality. Gerrish, in 1911, estimated that 10% of the population of New York was syphilitic. Fisher, in 1913, estimated that 18% of the entire population in the United States was syphilitic. Irvin concludes it is conservative to estimate that there are at least ten million syphilitics in the United States, while Church estimates the number at just double that mentioned or twenty million.

If these figures are correct, and we have no reason to doubt they are reasonably conservative, do we fully realize that ten to twenty million of the inhabitants of the United States are suffering from syphilis in some form or another and is it not high time for us as a profession, to commence at least, to sound a warning of some description? Stop and consider, if you but will that **one** out of every **ten to twenty** of our population is syphilitic and such syphilitic is free to go where ever he may choose, up and down the face of our broad land and perhaps is spreading the disease by the contamination of those not affected. Certainly this is a living menace not to be lightly turned aside and demands most serious consideration. True, many of those who have this disease, (but not nearly so many as we used to think) are incapable at times of transmitting the plague to others, but many that we used to consider safe and unable to propagate the malady are found in the light of recent investigation, to be dangerous as disseminators of the malady. In times past, we lulled ourselves into sweet security by what has more recently been proven a grievous fallacy so far as relates to the matter of infection, for our knowledge has broadened in some particulars concerning the habits of this organism.

The spirochaeta pallida, we have found, has the convenient faculty of selecting some

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suitable location of his host where he remains in retirement, until conditions are just to his liking and he then comes forth on his mission of pillage and destruction and during these times of activity, the individual is not usually a safe associate for his non-syphilitic companions.

The doctor, better than any one else, understands or should understand the habits of this relentless foe of human life and happiness. He it is who understands better than any one else the danger, if the males of a nation become syphilitic, he realizes that they will fail in all walks of life requiring manly strength, endurance and vigor. If the fathers and mothers are both syphilitic, a large per cent of the offspring never live to see the light of day and if by chance, any should be born alive, they soon die or only survive to be cumberers of the earth, a charge and a disgrace, not only to themselves but to those who gave them being. Mentally and physically, many we realize, are defective and hence useless members of society throughout their entire miserable existence, helping to fill our almshouses and asylums to overflowing. Syphilis is one of the greatest of all insidious destroyers of the human family. Were all the facts known, doubtless more innocent females have been crippled in mind or body and become maimed or helpless, if not killed outright, by this disease than any other. We do not here refer to the intelligently treated case, but to that great class of cases undetected and hence improperly treated or neglected until the time for relief by medication has passed.

It is not necessary that we as medical men, in order to get a just conception of the scope of this subject, review a lot of dry statistics. The medical profession realize better than any other, if they are but once awakened, the gravity of this question in all its various ramifications. They clearly understand the menace of transmission and various avenues of infection. They realize something of the treatment, poor and insufficient as it frequently is—and the difficulties in the way of calling a patient completely cured, and last and most important of all, they should devise and demand an adequate method of control of all cases of syphilis, until they are positively proven to be cured.

We quarantine against all other forms of pestilence, smallpox, diphtheria, scarlet fev-

er, yellow fever, cholera, bubonic plague, etc., any one of which when arrayed in all his glory, is not to be compared to syphilis. Why are conditions thus? Why do we close our eyes to this subject, one of the greatest and most important to every member of the profession and to the human race! Why should this multi-headed monster, feeding on otherwise vigorous men and innocent women and children for the most part, be allowed to roam the land unfettered, unhindered and uncontrolled! We talk about the appalling loss of life in the present great world war, but the loss of life there is as nothing in comparison to a few years of undisturbed devastation of the world's syphilis. In war men are mainly the sufferers, receiving the brunt of the carnage and destruction and the offspring are not involved. Future generations are left physically untainted as a result of war, to enjoy life and its pursuits as they may. In the case of syphilis, men are not alone the sufferers, but women and children as well are affected. All classes, rich and poor, are here involved and the offspring, as a result, are crippled in mind as well as in body and entire nations become helpless and useless in the world's affairs when they once become syphilitic.

Tuberculosis, alcoholism and cancer have merited and are receiving popular consideration with most happy results. The layman has been taught something of the nature of the diseases just mentioned as relates to their symptomatology, diagnosis, treatment, and best of all, their prevention. Why should he not be taught something concerning this master demon and arch destroyer, syphilis? Why should it not have, as the diseases just mentioned, equally popular consideration? Its position among earth's enemies of happiness and life, certainly demands as much. Why do not the health authorities, the doctors, and the laymen arise in their might and demand that this monster of vandals, be eradicated from our midst or at least in some manner, arrested or restrained until he may be strangled or slowly starved to death, because of the lack of innocent victims upon which to feed.

Primarily, the fault is with the medical profession and for reasons it is well for us to consider seriously. First, whenever the word **syphilis** is mentioned at the present time, it is spoken in a whispered tone and with an injunction, implied, at least, that it

should not be repeated aloud or referred to in the light of day upon pain of social death. Does not this word at present stand as a synonym for all sexual uncleanness and include every sort of moral obliquity? Polite society has been taught to close its ears and shut its eyes when ever the word has been used. This is all absolutely wrong. The medical profession perhaps, has become sufficiently familiar with this tabooed word "syphilis" so when used, it is not shocked or offended, but they conceive of it in its broadest meaning, and the laity can with a little effort be brought to this same standard which is but sensible, wise and practical. There is no reason for all this false modesty and foolishness when the word syphilis is mentioned. It is truly prudish in the extreme and has only served to put in a false relation the physician, the patient and his disease. The laity should be taught the true facts concerning syphilis. Every doctor understands this to be necessary, for many there are who suffer the ravages of this disease, whose moral and sexual life is as pure as that of a vestal virgin. Also there are many who escape the infection not because they have been virtuous, but rather because they have been "lucky." We should ever remember not all those suffering from this dread disease, by any manner of means, have been worshippers at the shrine of Venus. This popular fallacy should be corrected and the public should be taught that there is such a thing as syphilis of the innocent. The public should know these facts. They should also know that one actively infectious syphilitic in a household is a thousand times more dangerous to the future life and happiness of that home than a case of smallpox, diphtheria, or scarlet fever and that it should be placed under control and put on the same plane as other infectious diseases. The public should know that entire volumes have been written on syphilis of the innocent, discussing the relations of the infected as they mingle with those not infected and the many ways by which syphilis is propagated and disseminated. We are familiar with many examples that may be given relating to this part of the subject. Such examples, however, are never mentioned in public and seldom even among the profession themselves and the laity never suspect such cases exist. We have been too quick to condemn the afflicted patient or to investigate and explain fully, the conditions, and we have neglected to take

the public into our confidence as we should.

You may well ask, if conditions are as related, if the situation is really as serious as reported, what shall we do about it, what is the remedy? The remedy can be named in one word and if that word be taken in its broadest sense and given its fullest interpretation, the results will be surprisingly satisfactory. However, a little time and patience as well as some effort by the medical profession, at least in the beginning, is necessary to inaugurate the movement and place it on a firm rational basis.

"Education" is the magic word which will bring relief. Arouse first the medical profession to the full realization of the dangers of the present situation. Let them once come to understand that their own sons and daughters are likely to be numbered with the ten to twenty millions that are already syphilitic in these United States, that their own offspring and very blood, may be in a few years among the syphilitic insane or the syphilitic congenital or acquired idiots or imbeciles, helping to fill the alms houses of the nation. When once such seed be planted, it will begin to bring forth fruit before many years. As the medical profession becomes awakened and educated itself, the knowledge will soon commence to percolate to the laity. The subject should be treated in such manner that it will become a practical and popular one for discussion, not because of its salaciousness, nor because of idle curiosity, but because of its importance and gravity and the possibility of involving any inhabitant of the nation. The stability, the integrity, the entire welfare of the nation depends upon the health of the individual. The blood of the nation must be kept pure, if we are to have full, red-blooded men and women, capable of taking a place among the nations of the world.

Other nations besides our own, are commencing to feel the importance of this vast subject. Great Britain, after several years of consideration, formulated and enacted a law to control venereal diseases, Germany also has an important law upon the subject, and Australia has recently enacted a law it would be wise for other nations to seriously consider.

We ask only the same consideration for syphilis that has already been given to tuberculosis, alcoholism or cancer—organized, pop-

ular, educational effort. This society and every other medical society in the nation and state should have appointed a standing committee upon syphilis. These committees should not be too large or too unwieldy. They should first present the subject to their local body of medical men and then each society should arrange in some manner, best suited to each community, to see to it that the subject is presented in a refined and practical manner to the public. Then annually or semi-annually, there may be a national meeting of those interested in the subject and at such meeting, after report and suggestions, the following year's work should be arranged and thus make the work harmonious and effective. If our own state becomes organized, enlightened, and educated, it will not be long before other states will adopt like measures. Give the people plain facts and figures and with these as a beginning, the average American citizen will soon do the rest.

Having once become enlightened, ways and means will soon be devised to meet the situation. The municipality, county and state, will then lend a hand and a practical quarantine or method of control will be devised. Let us see to it that the facts concerning syphilis be known, that the truth be told without reserve and the laity educated for the salvation of the nation.

Discussion.

J. Lue Sutherland, Grand Island.—I want to bring out just one point. If this disease is ever to be given publicity as cases of it come under the care and management of physicians in regular practice it will have to be done by organization and not individually. It would be worth the attending physician's job to give such cases publicity. It will have to have the sanction and backing of medical officials before it can be made a success and those medical officials can derive their authority only from organization; and this is the only way such a condition can be handled with any prospect of success.

E. C. Henry, Omaha.—We are having a great crisis and the medical profession is in a position to do a vast amount of good, if it can be aroused to the opportunity.

A great call has come from the Y. M. C. A., to help the troops. The men are coming from all over Nebraska, and they are reporting instances which show the need of enlightenment in army life. For instance, one of the Y. M. C. A. secretaries reports that the night after the men crossed the Mexican border back into the United States, they found the men staying with a woman just outside of the camp, and when the doctor got possession of her, she ad-

mitted that she had had intercourse with one hundred and sixty men in twenty-four hours, and she was in an active stage of syphilis. This explains how syphilis is being spread through the army. The particular fight is from certain misguided people who oppose all means of preventing thus spreading of the disease.

We do not have the proof yet that syphilis is ever cured, and the teaching that must go forth from the profession is that, when a man once has syphilis, he always has it.

One case was given the mercury treatment for three years and twenty years later he developed general paralysis of the insane, and so I repeat that as yet we have no proof that syphilis is ever cured.

So it is of vital importance for us to teach that syphilis is a most dangerous and fatal disease.

F. E. Coulter, Omaha, closing: I have nothing to say further than this: I trust this association and every other medical society will wake up to the importance of our subject. It is a most serious menace and one that is striking at the very foundation of society, our entire population is endangered and we should be aroused to the importance of the question before it is forever too late.

Intra-Spinous Medication in Syphilis.*

Ernest Kelly, M. D., Omaha.

It has long been known that syphilitic disease of the cerebro-spinal axis is very resistive to ordinary methods of treatment. It has been proven by experiment, that only minute quantities of arsenic, mercury, or potassium iodide, administered by inunction, intravenous injection, hypodermic injection, or by mouth, ever reach the central nervous system, and can be found in the cerebro-spinal fluid.

This fact, taken together with the fact that syphilitic lesions of the brain and cord are not so responsive to treatment as lesions situated elsewhere, led to the idea of introducing medical substances into the sub-arachnoid space by direct intra-spinous injection.

The old para-syphilitic classification has been relegated by the identification of the spirocheta pallida in paretic brains and tabetic cords. These diseases are better classified as late syphilis of the brain and cord. And while their lesions are largely degenerative in character, they are none the less subject to therapeutic attack, in order to stay the destructive process. The intra-spinous method offers a valuable adjunct to the other modes of administration in these diseases, as well as in the more acute interstitial forms.

*Read before the Nebraska State Medical Association, Lincoln, May, 1917.

Probably 40% to 50% of all syphilitics present, during the secondary stage of their infection, some changes in the cerebro spinal fluid, notably an increase in globulins, and a pleocytosis. Many of these are later on destined to be afflicted with definite lesions of the central nervous system. It behooves the physician, then, to be very chary about discharging any syphilitic as cured, until all means of determining the presence of the disease are exhausted.

Wassermann is insufficient for the discharge of such a case. Probably 40% to 50% of known syphilitics present negative sera at various times, except during the secondary period. The cerebro-spinal fluid shows by no means such a percentage of negative findings, and it seems to us a logical conclusion that before a luetic patient is allowed to consider himself cured, his spinal fluid should be examined and found to be Wassermann negative, to show no increase in globulins or in cell count, and if possible, a Lange reaction should be performed because some observers believe the Lange reaction presents more constant results than does the Wassermann.

Frequently the administration of some arsenic or mercury in a case presenting a negative serum will produce, after 7 to 14 days, a positive serum, so the provocative Wassermann may offer some assistance in clearing up doubtful cases showing negative reactions. However, the examination of the spinal fluid is by far the most reliable method. In years past, the treatment of syphilis has not been satisfactory. It is not entirely so now, but with modern intensive methods, it is approaching more nearly the result to be desired.

As near as possible, it should be the aim in every case, especially in syphilis of the nervous system, to eradicate all clinical symptoms, and in addition, bring about a negative serum and a negative spinal fluid. If one does not have this as his ideal, the tendency will be to treat the case only so long as the clinical phenomena indicate it. But for the complete eradication of the disease, if this is ever possible, one should go further, and by so doing, prevent many of the relapses which are bound to occur.

The intra-spinous mode is in line with intensive treatment; it is not meant to take the place of any other treatment, but rather to supplement the other time-tried methods.

That it does this in a most valuable way, is borne out by results obtained in its use.

In 1912, Fisher, of Kingston, Canada, gave to his patients salvarsan intravenously, and after rendering their sera negative to the Wassermann, would inject this serum intraspinaly every week for three months; thus this the patient would receive the same treatment every two weeks for four months. In 1913 Swift and Ellis introduced a new method of giving salvarsanized serum intra-spinously. The patient was given .5 gm. of salvarsan intravenously; after one hour, blood was drawn from a vein in sufficient quantity to furnish at least 15 cc of serum. The blood was allowed to coagulate, and was then placed in a refrigerator over night. The next morning the separated serum was carefully decanted into a centrifuge tube, and then centrifuged for one-half hour. The clear supernatant serum was piped off and poured into a graduated cylinder up to the 12 cc. mark, and then enough sterile 0.9 Na Cl solution was added to bring the total up to 30 cc. This was then placed in a thermostat for 30 minutes at a temperature of 56 degrees C. With the patient lying on his side, a spinal puncture was made, and 30 cc. of spinal fluid withdrawn, or if the pressure were high, enough was drawn to bring the pressure down to 30 or 40 millimeters. The serum salt solution was then allowed to flow in from a Luer syringe by gravity, through a sterile rubber tube.

Ogilvie, in 1914, introduced still another method, which he started to use in 1913, by which a definite dose of salvarsan was injected subdurally, diluted in the patient's blood serum. About 50 cc. of blood was taken from a vein, and the serum separated as above described. To 15 cc. of this serum was then added the dose of salvarsan to be given. This was done by mixing the salvarsan as for intra-venous injection, using enough water to bring the total up so that each 40 cc. would contain 0.1 gm. of the drug. Each cc. would then contain 2.5 mg. of salvarsan. He found 1 mg. to be the proper dosage, larger amounts causing severe pain and violent reactions.

Various salts of mercury have been injected also, diluted in the patient's blood serum. The bichloride of mercury has been used more than any other, in dosage from 1/60 to 1/30 gr. The salt is dissolved in normal

sodium chloride solution, mixed with blood serum, inactivated at 56 degrees for 30 minutes, and after an opiate sufficient quantity of fluid is withdrawn and the solution injected at body temperature.

Each of these methods has its advocates, and each has definite value. It has seemed to us, however, that the Swift-Ellis plan is the one of choice. The Ogilvie method is probably followed by more intense reactions, as is also the mercurialised serum plan and the latter has the objection that it is purely local. However, there is no reason for not giving general systematic treatment in conjunction with it.

We have used the mercurialized serum in a case of chronic syphilitic myelitis. The case was of five years standing, in a man past 50 years of age, almost completely paraplegic, bedridden, with marked anaesthesia and incontinence. He had received the usual antisyphilitic medication without improvement. He was given three intra-spinous injections of mercurialized serum, 3 to 4 weeks apart, with the result that he gained 50 pounds in weight, is able to stand on his feet and walk with assistance. He will probably make further improvement with more treatment. The injections caused some nerve root pain, which lasted 6 to 24 hours, but was easily controlled with morphine. There was also rise of temperature up to 102 degrees, which lasted from 6 to 12 hours. There were no bad after effects.

The inadequacy of the usual methods is well illustrated in the following case, which was referred for treatment because of convulsions. The patient was 30 years of age, had never to his knowledge had a primary lesion, and had enjoyed good health up to this illness. He had had three seizures that were typically epileptiform, coming on with a cry, unconsciousness, tonic and clonic spasms, cyanosis, biting of tongue, etc. He had headache and slight fever. His serum Wassermann was negative, and he showed no clinical signs of syphilis, but adhering to the dictum that nearly all convulsive attacks coming on after the age of 30 are due to syphilis, he was placed on antisyphilitic treatment. He was rapidly saturated with mercury, until his teeth became very tender, and an ulcer developed on his tongue. In spite of this, his temperature went higher, his headaches became so severe that they were

relieved only after good sized doses of morphine; he could not retain food at all because of his cerebral vomiting, and he was delirious most of the time. His condition was rapidly becoming desperate. His serum now gave a 1 plus Wassermann reaction, his spinal fluid a 2 plus, doubtless due to the provocative action of the mercury. The cell count of the spinal fluid was 22 per cu. mm. He was given .45 gm. of neo salvarsan, and the next day an intraspinal injection of neo salvarsanized serum, after the Swift-Ellis plan. On the fourth day his temperature came to normal, his headache disappeared, he was able to retain his food, and his mental state cleared. At intervals of two weeks, he was given two other injections, the amount of the neo salvarsan being increased to the full dose. He made a good recovery and was able to resume his work.

A very satisfactory result was obtained in a case of marked paresis, by this plan. The patient, 45 years of age, had received treatment for several months without improvement; he was violent, had expansive delusions and finally was committed as a paretic to the State Insane Hospital. After being in the hospital a short time, he was no longer violent, and became more or less stupid and apathetic, and was brought home. He was referred for intra-spinous treatment. He had had a chancre 19 years ago, and had only been treated for the primary sore. He never had any secondaries. His pupils were unequal and inactive to light, there was marked dysarthria and tremors of the face and tongue, and the left side of the face was in a state of clonic spasm constantly. The deep reflexes on the left side were all increased, ankle clonus and a Babinski were present on the left side. His memory was very uncertain, and he was only partially oriented. The serum Wassermann was 2 plus, the spinal fluid Wassermann was 3 plus, and there were 82 cells per cu. mm. He was given neo salvarsan in full dose, followed the next day by an intraspinal injection of the neo-salvarsanized serum. On the 5th day, his facial spasm ceased, but otherwise he did not show much change. After ten days he was given a second treatment, and in two weeks went home, considerably improved. He has been receiving mercury and iodides since then, and is now, after one year, able to attend to his duties, apparently normal. He is still under treatment however.

Another case of paresis, 42 years of age, of six months standing, was referred for intra-spinous treatment. The patient had been violent, had had a number of convulsions, and was in a state alternating from grandeur to depression. He had dysarthria, tremors, considerable ataxia, pupillary changes, etc. Serum Wassermann, 3 plus. Spinal fluid Wassermann, 3 plus, 75 cells, increased globulins, and Lange paretic zone 445555000. Three doses of neo salvarsan, with intra-spinous injections of neo salvarsanized serum were given at two week intervals. There was temporary improvement after the first dose, but after that he gradually declined and finally died.

Recently a method for treating paresis has been perfected, and is producing good results, by the use of salvarsanized serum given directly into the lateral ventricle by a trephine opening in the skull. The technique is simple, and the operation takes from 8 to 10 minutes, done under local anaesthesia. We have not yet tried this plan.

A case of tabes, of 12 years duration, with marked ataxia, typical gait, incontinence, sensory changes, absence of deep reflexes, and positive Wassermann, is now under treatment. His spinal fluid shows a cell count of 52, increased globulins, and Lange reaction positive, 444330000. He has received two injections, and already shows considerable improvement. He walks better, is able to go up and down stairs alone, (which he could not do before), and is much more certain of himself on a crowded street.

A case of cerebral syphilis in a young man of 24, received only one injection, because believing himself well, he refused further treatment. He had headache, pupillary changes, increased deep reflexes, and a Babinski on the left side. His serum Wassermann was negative, his spinal fluid Wassermann 2 plus, with 30 cells per cu. mm. and Lange reaction positive 113000000. His headaches ceased, and the left side cleared up, the reflexes becoming normal.

Various theories have been advanced to explain the results obtained through intra-spinous administration. Perhaps the most obvious one is that the introduction of arsenic into the spinal fluid brings it in contact with the lesions, and thereby makes the spirocheticidal action more positive and rapid. The introduced serum permeates the

whole central nervous system by the ventricles and subarachnoid space, and more important by the perivascular lymph spaces which are continuous with and drain into them. Another theory is that the introduction of a foreign substance so irritates and inflames the blood vessels of the choroid plexus and meninges that it renders them more permeable to the passage of medicinal substances from the blood stream to the nerve tissue. Salvarsan, neo salvarsan, or diarsenol-benzol may be used, though if neo salvarsan continues to be available, it seems to us to be the drug of choice.

In conjunction with the intra-spinous mode of treatment, all cases, except the case of myelitis, received large doses of mercury and iodides. In acute conditions, two rubs of one drachm each of unguent. hydrarg. were given daily, up to the point of saturation, that is, stopping when the teeth were "touched." Simultaneously, potassium iodide was prescribed three times a day, in doses from 20 to 100 grs., keeping in mind the purpose of attempting to bring about as complete an eradication of the spirochetæ as possible.

In interstitial forms of syphilis, we find the combined method of treatment; that is, the intravenous injections of salvarsan or neo salvarsan, and the exhibition of mercury and iodides together with the intra-spinous injections, to be the one "par excellence." It is of undoubted value also in the parenchymatous forms, but of course, where there has been destruction of tissue, no plan can be expected to bring about regeneration.

The ideal thing, then, is to treat every case of syphilis intensively and stamp it out as near as possible, before destruction of tissue occurs. If a case is not seen until such destruction has taken place, then the patient should have the benefits of the intra-spinous method, to stop the disease process and prevent further degeneration.

Conclusions.

1. Intra-spinous injections of salvarsanized or neo salvarsanized serum, with proper precautions, is safe treatment.
2. The results obtained by them show superiority over the older methods.
3. Treatment should be persisted in until the serum and spinal fluid no longer show abnormality, regardless of clinical progress.

Discussion.

M. G. Wohl, Omaha.—This is too valuable a paper to be passed without arousing some discussion. The treatment of cerebro-spinal syphilis is complicated by the fact that the sub-arachnoid space, in addition to the larger spaces and the cisterna, is directly continuous with the perivascular and perineural lymph spaces. Hence, the intra-spinal introduction of salvarsan, as described by the essayist, will prove of value in the interstitial type of syphilis; in other words, where the pathology is limited chiefly to the vessels and meninges. However, I fail to see how the intraspinal use of salvarsan will do any good in cases of parenchymatous syphilis such as paresis and tabes where the chief picture is a degeneration of nervous elements.

The amount of salvarsan contained in the serum for intraspinal medication is very small and little or no salvarsan gets to the central nervous system when it is administered intravenously because of the choroid plexus. I fail to see how a sufficient dose of salvarsan will get through the same choroid plexus and reach the lesion in the central nervous system when salvarsan is introduced intraspinaly.

Another point I would like to emphasize is the importance of examining the spinal fluid during treatment, especially for the number of cells since the lymphocytes in cerebrospinal syphilis are the first to make their appearance and the last to go.

Dementias of the Young.*

B. F. Bailey, M. D., Lincoln.

A few months ago I presented to the County Society an argument relating to the possible etiology and treatment of certain mental diseases, especially those of comparative youth. As an apology for the presentation of the argument I quoted statistics showing that there are nearly 200,000 patients suffering from mental afflictions in the public institutions of the United States; that they are rapidly increasing and that there has been a great wave sweeping over the United States and the world, assigning as etiology for a dangerously large percent of these cases a psychic trauma to the almost entire exclusion of somatic ailments. I said, if these conditions are primarily somatic in origin and only secondarily psychic, the theory of psychic traumatism pushed to the extreme would tend to discourage rather than to encourage public provision for study in chemical and pathological laboratories of the organic diseases, secretions and functions. Study of these alone can determine the cause and predicate the relief for a lack of metabolic har-

mony. I called attention to the large number of manic depressive, exhaustive, paranoic and toxic cases. I emphasized as a startling fact that New York state in 1913, admitted to her institutions for the insane over 10,000 cases diagnosed as dementia praecox, about one-eighth of their total admissions. The peak age of admission was 23 3/10 years. During that year only sixteen cases were discharged as cured, while 548 died. I gave numerous other facts and statistics that I will not repeat.

I would emphasize today the fact that if we read the authorities on mental disease we are almost in a mirage, for something constantly comes to our eyes in the reading, that indicates a possible definite explanation of probable causes and origin, possibly on the next page. As we continue it resolves into an unrealized vision. A very unsystematic and asymmetrical symptomatology fills the books while the etiology has been, at most, little but a suggestion. Practically every discovery of science has been prefaced by a hypothesis, each hypothesis seeming reasonable and probable from the judicial weighing of evident facts and probable causes. This having been true in the history of medical discoveries, it is but right and proper for us to colate recent experiences, recently proven facts and consequent hypotheses and make from them a working basis for possible discoveries of well defined etiological truths.

Permit me to recall a few clearly outlined facts concerning dementia praecox, which furnishes the greatest number of insane among the young. In 1913 Fauser said the defensive ferment in dementia praecox would reduce the antigen from the testicular secretion, if the patient be a male and of tube and ovarian secretion, if a female. Wagner in 200 cases corroborated Fauser. Fisher in 1913, secured the same results and also demonstrated that the blood of epileptics without exception reduces the antigen of the brain cortex. Fischer and Myer found that the dementia praecox blood serum sometimes reduces the antigen from the brain cortex, from the thyroid and from the adrenal, but not always; whereas they always reduce the antigen from the testicles and ovaries. In the normal person 1/2 c.c. of adrenalin one to one thousand raises the blood pressure 40 m.m. In dementia praecox cases it will depress the blood pressure. It is also true that in dementia cases mydriasis is evident ten minutes

*Read before the Nebraska State Medical Association, Lincoln, May, 1917.

after the instillation of one to one thousand adrenalin and persists for quite a period. I have also in many cases of dementia proven that pituitrin which normally raises blood pressure, in these cases depresses it. An excessive activity in the administration of pilocarpine is now recognized in the praecox cases. These are the latest points of assumed diagnosis. Our subjective and objective symptomatology shows to us in the observation of an average number of these cases abnormal anthropometric measurements and a status lymphaticus as evidenced by long arms, large hands and small thoracic contents. We find a slow pulse quickly changing with little evident cause. There is often a tendency to subcutaneous extravasation and almost invariably there is cyanosis of the pendant extremities. The blood pressure does not show the usual increase when in erect position as over the sitting or lying position. We have the enlarged tongue and the large veins in the upper lids and gums.

Dide notes that the blood findings suggest infection or toxæmia, while the leukopenia is that of the negative phase in the defenses of the organism. Lundahl found in the active stage of praecox a polycythemia and leukopenia, while in the remission the erythrocytes become again normal and the leucocytes rise above normal indicating a probable toxic or infectious condition. Osteomalacia, fragile bones and colitis are common. Catatonia, inertia and cataleptic conditions need only to be mentioned. Myocarditis is not an infrequent occurrence, evidently the result of infection not readily combatted. A common finding is an enteroptosis entirely in keeping with the general laxness of an atonic system.

Having noted these symptoms and findings in cases with a trend dementiaward, the next step in seeking a hypothesis, is to find what modification of the functions of normal organs produces similar or synonymous findings. These evidences which we know to be the result of a modification of normal organs being noted, we are led, for the sake of therapeutics to a still further step in a search for some method of correcting these abnormal functions and thus removing this surface play of symptomatic errors in function. A well worked hypothesis later proven true by scientific experience and laboratory effort will permit us to consider and deal with conditions and not names.

Then such a term as neurasthenia which has sometimes been called the "Dust Bin" of the neurologist will rapidly become obsolete.

We have come to believe as a profession that the office of the initiative in life is played by the so-called hormones of the body and that in their perfect balance lies the even stimulus which marks the difference between the perfect, ball bearing, smooth acting, frictionless machine and the one that has become carbonized and inefficient. As observation has shown, in a certain class of diseases, as for instance, in the mental diseases of youth, we find certain conditions which we have also observed in a hyper or hypo supply of certain hormones. Therefore, it is but proper and legitimate that we be impelled to investigate carefully the possible relationship between different hormonal errors and so-called diseased conditions.

In 1859, Schiff gave us the report of cases with fatal results from whom the little one to two ounce thyroid had been removed. Koeber has described this post-operative condition as a cachexia strumipriva, a hypothyroidism, and from the belief that there was an excess of mucin in the subcutaneous tissues, it has also been called myxoedema. The symptoms of hypothyroidism differ in the young and in adults and evidently in the congenital and in the acquired. In the young, we have the cretin—with imperfect or delayed epiphyseal ossification, imperfect development of the skull bones, prominent abdomen, spinal laxity and sexual infantilism. In these cases as well as in the latent ones there are alterations in growth of the hair with aortic atheroma, slow metabolism, especially of the nitrogenous foods, with increased deposits of fat, tolerance of carbohydrate and susceptibility to cold. The difference between this and the action of the hormone of the parathyroid glands is not yet understood. Some claim a marked difference, others claim a complementary office. Hertz in the English Practitioner for January, 1915, reports a post-operative thyroid case that two years after thyroidectomy became restless, had fibrillary tremors, his hair ceased to grow, he was impotent, bowels loose and weight decreased. Thyroid gland administered aggravated the symptoms. Under parathyroidtherapy he rapidly improved and made good recovery. Only a straw, yet it indicates that the secre-

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Acid-Base Metabolism.

In a recent Samuel D. Gross lecture L. J. Henderson of Harvard University enters upon a discussion of acidosis which cannot fail to interest medical men for practical as well as theoretical reasons. Not infrequently practice is based upon theoretical considerations and, vice versa, theory is based on practice. In a sane mind the two are complementary—one reaching out into the unknown; the other, conservative, holding to that which has been tried and tested.

The Ancients were fond of comparing life to a fountain or to a flame, which, while the matter of which they were composed was continually changing, yet, as a whole, presented to one's vision a constancy of form. To students of metabolism an analogous conception of the chemical processes within the body is a commonplace. They have long been familiar with the fact of nitrogen equilibrium. Day by day, in healthy individuals, the ingestion of nitrogen is approximately equal to the amount that is excreted. Later research revealed similar equilibria concerning carbon, sulphur, phosphorus, water, salts, glucose, etc. The equilibria of temperature, volume and alkalinity are also truly analogous phenomena. In fact, the whole organism exists in a state of dynamic equilibrium which may be expressed in Herbert Spencer's conception of life as, "the continuous adjust-

ment of internal relations to external relations." There is no one process or phenomenon which is the fundamental one but each is integral, at once as cause and as effect in a cycle of changes whose onset may be at one of many points and which, as a whole, may, as in acidosis constitute a deranged acid-base metabolism.

Acidosis is a condition not necessarily connected with the production of oxy-butyric acid, or with the magnitude of hydrogen-ion concentration in the blood. It is often characterized by high urinary ammonia but sometimes this quantity is low; the concentration of carbon dioxide in alveolar air is commonly low but perhaps not invariably so. As a practical maxim Henderson states we are justified in saying that acidosis is a state of diminished bicarbonate in the blood which means depletion of the body's alkali reserves.

There is a physiological test of great simplicity involving no experimental skill at all which seems to lead to trustworthy conclusions as a means of recognition of a diminution of the bicarbonate of the blood. This test depends upon an observation made by Sellards and by Palmer and Henderson that in different pathological conditions and in different individuals the amount of soda administered by mouth that is necessary to make urine alkaline is a very variable quantity. Henderson is convinced that this variation depends upon the retention of alkali by an organism whose store has been depleted until the normal amount is restored. The addition of five to ten grams of soda to the food is enough to make the urine of a healthy person alkaline and if more than that is retained, experience justifies the conclusion that a state of acidosis exists.

A rational treatment for acidosis is then obvious. If sodium bicarbonate is administered at frequent intervals in quantities just sufficient to make the urine as alkaline as the blood, acidosis cannot exist to the extent, at least, to which the alkali can penetrate in sufficient quantities to the seat of acid production. This method is probably inadequate to cope with the complex problems of diabetic acidosis. This is rather a matter of proper feeding than of therapeutics.

Next to water and sodium chloride the concentration of sodium bicarbonate is greatest in blood and it seems not unreasonable to care for a sufficient supply of this substance

as one does for a supply of water. Acidosis is one of the commonest of pathological states. Probably more common than fever. Therefore, in serious illness the test for acidosis should always be made.

Henderson states: "The use of alkali must always be deliberate and founded upon the urinary reaction, for, too much alkali may be very harmful indeed. As employed by Martin Fischer in nephritis, experience has convinced me that it is a source of grave danger and, if possible, greater suffering to patients who can often expect from the physician little more than some relief from pain."

Medical Army Service.

At a recent meeting of the Missouri Valley Medical Society in Lincoln, Dr. J. M. Bannister, Col. United States Army, made some very pertinent remarks on the attitude of the medical profession toward the needs of the war. In laying the matter before the Society he mentioned the fact that at the present time, 25,000 medical men were required to bring the medical department up to its proper quota. He also read an extract from a letter received from the Surgeon General's office saying that up to date only about 10,500 men had accepted commissions. There probably is a lack of appreciation of the valuable work done by the medical department in the United States Army on the part of the laity as well as the profession.

It will be recalled that in the Spanish-American war, twelve men died from disease for every one killed in action. In the Russo-Japanese war, two were killed in action for every one dying of disease. This was the first evidence that real medical organization had been brought about in an army and it shows the value of proper sanitary precautions during the time of war.

It may not be amiss to review briefly some of the accomplishments of the medical department of the United States Army. It will be recalled that through the efforts of the department, and the gallant heroism of some of its officers and enlisted men who offered themselves for experimental purposes, the method by which yellow fever was transmitted to human beings was definitely established. After this fact had been definitely established, sanitary engineers of the medical department of the United States Army

made it possible to build the Panama Canal and have made the Panama Canal zone as healthy a place in which to live as the state of Nebraska.

To bring the matter closer home, Howard Taylor Ricketts, an alumnus of the University of Nebraska, offered himself as a living sacrifice to prove the etiology of typhus fever and through the efforts of American physicians the epidemic of typhus fever which killed hundreds of thousands in Serbia, was stamped out. When we bear these things in mind we cannot sit idly by and permit the flower of our nation to go to foreign fields without proper health safeguards.

The Physician's Vacation.

A remark of a layman concerning certain things medical recently came to our attention and expresses so clearly an erroneous idea of the work of the physician that we deem it deserving of comment. The layman remarked that physicians always had a good time and were running away on vacations frequently and were good spenders when on these vacations. Coincidentally with other remarks, in the same conversation, there was shown an utter lack of appreciation of the work the physician is called upon to do as his daily routine.

It will be recalled by those of the profession that the physician in active practice has no time which he can truly call his own. He must be ready to answer demands made upon him night or day, Sundays or holidays, with little regard for his personal comfort and convenience. Further than this, during the active working period each day he is listening constantly to some one's story of distress. When the physician has this hammered into him continuously from day to day he becomes depressed and a large amount of energy is expended overcoming this state of mind. Due to this depression a certain percentage of physicians have tried to drown their grief with John Barleycorn.

The vacation which a physician requires demands utter relaxation and entire change of environment. The only way it is possible for a physician to secure these things is by getting away from his home and away from the telephone. Very often he spends his vacation in attending clinics in neighboring

cities so that he may do better work when he returns.

This same layman made the remark that physicians' money was "easy come and easy go." We wish to call the attention of those who hold such a belief to the fact that now days a physician in order to make a diagnosis, must not only look at the tongue and feel the pulse and take the temperature but he must make a complete physical examination. He must examine the urine, the stomach contents and feces, take a blood count, make a Wassermann test and an X-ray examination. To make all of these tests, it requires not only a considerable expenditure of time but a marked amount of skill and considerable expense. The physician is selling his ability while the merchant is selling his goods. The cost of goods to the merchant is figured closely. The cost of attaining ability for the physician runs into large sums of money; for example, the cost of medical education will approximate \$8,000 to \$10,000, up to the time he receives his medical degree; the cost of post-graduate work; the cost of equipment and its depreciation; interest on the amount of money spent for education plus sinking fund to pay this money back to himself in approximately twenty-five years; all this means a large sum which if employed in some commercial enterprise would yield substantial returns. These expenses plus the ordinary overhead expense of conducting the business must be figured in when the physician makes his charge to the patient. This kind of work demands good fees and the physician who does not charge them will seldom be able to survive any great length of time financially. If he is unable to properly finance his business he is probably unable to properly train himself for the best work.

DEMENTIAS OF THE YOUNG.

(Continued from page 459)

tion of the two glands are not entirely the same. McCallum and other investigators have pretty definitely decided that both glands affect markedly calcium metabolism, that in hyperthyroidism over-active calcium metabolism insures rapid elimination of calcium, that in hypothyroidism elimination of calcium is slow, and a greater per cent remains in the system inactive and subject to deposit. This probably initiates the trend to aortic athreoma. In hypothyroidism this failure of calcium metabolism is well under-

stood to affect the poise of the nerve cells and to account for an excessive irritability of the nervous system. Rendle Short claims to have found thyroid extract fully as effectual as iodid of potassium in healing tertiary syphilitic ulcers. We have investigators claiming a marked toxin neutralizing action for the thyroid and we know that in the adult thyroid deficiency favors a condition of secondary anemia. Hyperthyroidism usually develops between twenty and forty and often at the critical times of life. Its symptoms are unnecessary to give, they are too well known by all. Permit us to simply emphasize that they are apt to develop hallucinations, mania, obsessions and to change a whole personality from unselfish to selfish, from the poise of calmness to the flutter of restlessness, to lose their concentration and as Reynolds says establish a "mental chorea." They suffer from hyperhidrosis and bring to us the definite question as to a possible basis of origin in either the sympathetic or autonomic system.

The third form is now being earnestly considered by the profession, namely the condition called submyxedema. As we may have a mental deficiency, so we may have a thyroid deficiency. As we may have the idiot so we may have the apparently complete thyroid absence as in the exaggerated myxedemic case. The suspicious signs of this disease are the irritable vasomotor system, subnormal temperature, slow pulse, inclination to increase in weight, rough dry skin. Levi and Rothschild especially call attention to the so-called eyebrow sign a scarcity of hair in the eyebrows especially at the outer third of each brow. Constipation predominates, diurnal somnolence and unexplainable myasthenia.

Levi and Rothschild have advanced most interestingly and convincingly the condition which they term thyroid instability, in which the pendulum swings from one side to the other. The hyper acting gland is followed by the hypo acting gland, the last the result of exhaustion and the first the result of reaction and they seem to account in many cases, by this condition, for a nervous instability.

Cobb describes a case in the British Medical Journal of a young business man who after a prolonged period of financial strain, developed increase in weight, dyspnea on exertion, bradycardia, low temperature, falling

hair and the eyebrow sign. The man was treated with rest, general hygiene, careful nutrition, and cardiac stimulation, without improvement. Three weeks of thyroid medication removed all symptoms, another interesting straw.

Lane states that one of the effects of intestinal stasis is atrophy of the thyroid. Is it not possible that he is wrong and that intestinal stasis with the enteroptosis accompanying is the result of the relaxed conditions from a primary hypothyroidism? Is it not possible that the so called antitoxin power of the thyroid is due to the balance of metabolism that it encourages and that the trend to infection in hypothyroidism is due to failing metabolism and hence imperfect defenses? We must remember that the statement of Cobb is thoroughly proven: "Throughout life the living cell requires certain hormones if it is to follow the normal cycle of life." "If starved of thyroid its growth is impaired. Administer extract of different glands and growth is resumed." He further says: "The subject of thyroid deficiency is never 'fit,' he is generally tired, he finds work a burden and whether his employment is physical or mental he requires a 'push.' He is sluggish mentally and languid physically."

A few words about the pituitary hormone, it raises blood pressure and slows heart action, similar to adrenalin except that pituitrin slows and adrenalin increases the pulse count. Pituitrin acts upon the smooth muscles of the stomach, intestines, uterus and bladder. Froome reported benefit in the treatment of Amenorrhea with pituitary extract.

Hypersecretion of the pituitary body is now believed to be the cause of acromegaly with its enlarged and coarsened face, with head flattened and squared, with mushroomed fingers, with hypertrichosis and with diminished sexual activity. Frequently, however, in these cases, in the beginning the sexual activity is increased and later diminished.

Cushing's Dyspituitarism and Bartell's Dystrophia Adipose Genitalis are typical examples of hypopituitarism with small stature and increased avoirdupois, delayed sexual development, lack of hair, feminine characteristics, deficient sweat, skin smooth and even, temperature, pulse and blood pressure low and mental attitude sluggish. Note the

marked similarity to myxedema, yet we find differences. Modifications are evident indication whether the anterior or posterior lobe of the pituitary is most probably affected.

Through most important organs, we can deal with the adrenal characteristics in a few words. The secretion is common with that of the whole chromaffin system though more marked and clearly defined in the adrenal secretion than in the others. The adrenal secretions stimulate only the plain muscle tissues which are supplied by the sympathetic system. That this is true can be verified by electrical stimulation of the sympathetic nerves which correspond exactly to the result of, to quote Gerkie Cobb, adrenalin stimulation. Adrenalin insufficiency produces, "a low asthenic condition of mind and body, subnormal temperature, headache of vacuum nature and dermatography and varying from these symptoms to the fully developed Addison's disease with the pigmentation which you well know. A pigmentation in a lessened degree is exceedingly common in cases of melancholia with enteroptosis and marked evidence of the failure of the sympathetic nervous system."

Three words which will express perhaps as well as any the symptoms of adrenal insufficiency in the young are, languor, hyperpiesis and backwardness. They are also evident in the incipency of some of the mental cases of the young.

The hormone of the islets of Langerhans is so important that upon its failure probably depends a large part of our cases of diabetes of adult age, and yet its very development probably depends to no small extent on the previous production of the hormone secretion. Many believe that the pancreas extracts modify and regulate the power of the adrenal and general chromaffin system and we have yet to try out in a scientific and thoughtful way the use of the pancreatic extracts and the thyroid extracts in incipient cases of arteriosclerosis with high blood pressure. We know or believe we know that the stimulus that makes for the change in the human being at the critical period of life called puberty is developed from the interstitial cells of Leydig in the testicle and similar cells in the stroma of the ovary.

Biedl in his work on the internal secretory organs tells of seventeen cases of sexual precocity, in eleven of which were found supra-

renal tumors. After castration in the youth, we find marked growth in the bones, especially of the bones in the skull and pelvis with retarded ossification of the epiphyses.

Fischer demonstrated that the enlargement of the pituitary following castration could be reduced by extract of the testicle. It has also been shown that under these conditions the thyroid is atrophied while the thymus tends to persist. The acuteness of metabolism in castrated animals is reported by Lowry and Richter as distinctly lessened.

Harrower in his "Practical Hormone Therapy" says: "A course of treatment with testicular extract frequently accomplishes such a number of changes in such remote organs and influences such widely disconnected ones, that to report actual results might even be sufficient to discount the position of this method. The extent of these results is undoubtedly due to the stimulating action of the testicular hormone upon the endocrinous system as a whole, and as a means of revitalizing an individual with deficient oxidation, poor nutrition, nervous inactivity and general weakness, the system is of undoubted value. There are few single remedies which can compare with active and properly prepared testicular extracts."

There is much to say of corpora lutea, but I will leave it for lack of space and because it is more familiar to us all.

I would like to go into the question of hormones of digestion, but with these too we are familiar and as my paper is to be but an effort toward stimulation to a general investigation, I must not be too verbose.

That the thymus gland plays a remarkable part in the development of youth and in calcium metabolism is unquestionably evident. That there is an antagonism between the thymus and the sexual organs seems probable.

According to careful investigation by Paton and reported by him in the Journal of Physiology, an ovariectomy is often followed by thymus hypertrophy.

Bringing together the threads of my paper I feel obliged to mention the comparatively recent work of Eppinger and Hess along the lines of a condition which they term vagotonia, by which: "we understand a lasting tonic irritation in the realm of the autonomic system which maintains its end organs in a state

very closely resembling that produced by electrical stimulation of the autonomic. The analogue to this is sympathicotonia. This is dependent upon normal functioning of the adrenal glands and the entire chromaffin system." We know that the sympathetic and autonomic systems are antagonistic to each other. Eppinger and Hess say we know the stimulus of the sympathetic is adrenalin. We do not know its antagonist, but only substitutes for it. They also add "There is a probability that the hormones arising in the various endocrinous glands show variations and that their interplay makes the final effect different from that of any of them." Adrenalin stimulates the whole sympathetic nervous system. Other hormones stimulate the same system, but only in parts of it. Thyroid stimulates the intestine, the sweat and the salivary glands. Infundibulin stimulates the pelvic nerves while leaving other branches unaffected. Hess believes it possible that "the pancreas may be the site of production of autonomic stimulation. The secretion probably acts in opposition to that of the chromaffin system." Again quoting Eppinger and Hess the question now arises "whether some clue may not be derived from general pathology which may strengthen our idea that in the absence of some endocrinous gland there exists some condition analogous to vagotonia." They mention Addison's disease with its emaciation, diarrhoea, lowered blood pressure, pigmentation, sweating, adynamia, sugar intolerance and hypoglycemia. The anatomical findings in Addison's disease are lymphatism and enlarged thymus. The adrenals may, however, be diseased and we may not find all of the symptoms of Addison's disease, but a modification or sub-condition.

Weisel, Heddinger and Harte believe primary lymphatism due to inferiority of the chromaffin system and Weisel states that "the adrenalin products systematic and fully developed changes in that group of cases in which status thymicus is most marked." "If as we are told, vagotonia is an opposite to the constitutional state in which the adrenaline producing organs dominate a metabolism and smooth muscle activity, there can be no doubt that Addison's disease may be considered an exaggerated form of vagotonia." Vagotonia works oftenest in the young so does lymphatism. Bartell believes that "lymphatism and persistent thymus are part

of a general state of inferiority, one of whose manifestations is a decreased resistance to many noxious influences." Bartell also believes "that there exists in the constitutional inferiority of status thymicolymphaticus some factor which predisposes to some disease and against others." Now the fact is that just those diseases which we have found to be vagatonics in nature or which are readily developed upon a vagatonic basis are according to Bartell's findings combined with lymphatism. "We have shown that in many cases of vagatonics," he says. "There are enlargements of those parts of the lymphatic system which are enlarged in status thymicolymphaticus."

Eppinger and Hess say that lymphatism combined with status thymicus comprise a reliable constitutional state of inferiority and is related to a predisposition to certain definite diseases.

Now for the parallelism. The most marked effect noticeable in those of our youth suffering from mental diseases is a disturbance of the whole vagatonic nervous system. In these cases if you will compare the symptoms of dementia praecox with the symptoms that are given in this paper and that you may find elsewhere of the varied errors in function of the hormon producing organs, you will find a similarity that cannot be gainsaid or be overlooked.

Space does not permit me to take it up in detail but the same general inferiority which exists in vagatonia, which exists in pituitary, adrenal, thyroid and thymus deficiencies is found to exist and to be the basis of the constitution upon which is based our dementia praecox, our youthful nervous temperament. In the normal case the adrenaline raises the blood pressure, in the dementia praecox it lowers it and may it not be from the theory that the autonomic system being in these cases dominant, the adrenalin medication is insufficient to overcome it but being naturally antagonistic stimulates it to greater dominance. The same is probably true of the action of pituitrin in lowering the blood pressure in dementia praecox.

In the paper which I presented to the County Society upon this subject I mentioned a number of cases in which we had found good results in the use in mental cases of certain vaccines. My latest studies along this line seemed to indicate to me that it is altogether

probable that the good results of vaccines in these cases are not the arousing of the defenses alone, but must of necessity be an arousing of the whole metabolic system. I believe that these remedies can only be efficient in those in whom a temporary vagatonic condition or hormonal vagary exists and where nature, given a stimulus, arises to the defense. Beyond these cases of incipient and temporary functional fault we must go deeper and seek, though it be for many a year, the possibility of deciding what is a hormonal balance and how to preserve it.

In the last fifteen months I can report nine cases of distinct mental and physical inferiority ranging from manic depressive to cases presenting all of the stigmata of dementia praecox, which under treatment by adrenalin have been discharged as apparently cured. Please note that I say "apparently," as it is a very grave question as to how long the result which has obtained as a result of supplying a deficient hormone may continue. Of these nine cases five received at the same time pituitrin treatment. In the same number of months five cases, manic depressive in type have apparently recovered under pituitary treatment, while three cases of suspicious dementia have under thyroid treatment done remarkably well, sufficiently well to be suitable for discharge. One of these cases had pituitrin also. During this time I had seven cases under treatment with adrenalin and pituitrin in which I do not dare assert any improvement worthy of the name. Every one of the cases impressed me in the beginning as cases of congenital inferiority. The same is true of pituitrin treated cases, thyroid cases and combined pituitrin and thyroid cases.

Of the congenitally deficient it can be said they are almost human, but to expect to make them normal with any power now or ever to be in human hands is like expecting the rose to bloom from the thistle or the silk purse to emanate in origin from the sty.

In resume, every mental case that develops during the development age though it seemingly may be but a failure of psychic balance, demonstrates a basis error in the normal elasticity of the human balance. We think that inasmuch as we can trace in the surface play of these mental conditions of youth the same symptoms, evidences, land marks and guides as we find in the hormonal errors of the en-

doctrinous glands, it is possible that the mental condition are a manifestation of the hormonal failures.

Third, inasmuch as the best authorities today seem to indicate that perfect metabolism depends upon the hormones and without perfect metabolism there cannot be perfect psychic or physical well being, is it not reasonable and possible to bend ourselves to these clinical as well as laboratory studies that we may make helpful in the treatment of disease these analagous symptomologies of youthful inferiority and hormonal hyper or hypo conditions.

And fourth, that I may not be misunderstood and forget the psychic in too close inspection of the physical, let me call attention to the fact that it is reasonable to suppose and I believe has been rationally demonstrated that oft times marked hormonal errors result from too great psychic demand and that the psychic effect in its demands upon the adrenals and pituitary as well as the other hormones is tremendous. In the normal individual the hormone producing organs will arise to the demand and with a lessening of the strenousness, permit the pendulum to swing back to the normal, but in the one with lack of inherent reserve, exhaustion follows the excessive demand and the end may be—we know not what.

Fifth, we cannot separate the physical and the psychical. We must study them side by side knowing that they react and interact and I am sure that you will realize that I have taken up this great subject in this brief and imperfect way today hoping to stimulate upon the part of all our society a vigorous study along the lines of mental and physical inferiority among the youth of our clientele.

Focal Infection, Its Relations to Remote Local and Systematic Conditions. Diagnosis, Treatment.*

A. N. Lemoine, A. B., M. D., Nelson.
Introduction and Definition.

Focal infection causing remote, local and systemic disease and symptoms is a conception as old as medical knowledge, but it was noted only in examples of general disease arising from trivial and serious accidents or wounds and these were usually acute and fatal. However it was not until the last de-

cade when a new interest was aroused in focal infection that we realized its importance and relation to remote local and systemic acute and chronic diseases and symptoms.

Billings says, "a focus of infection may be defined as a circumscribed area of tissue infected with pathogenic micro-organisms. Foci of infection may be primary and secondary. Primary foci usually are located in tissue communicated with a mucous or cutaneous surface. Secondary foci are the direct results of infection from other foci through contiguous tissue or at a distance through the blood stream or lymph channel."

The Micro-Organisms.

The pathogenic micro-organisms found in these foci of infection are numerous bacteria, protozoa and fungi, but the discussion of this paper will be limited to the usual pathogenic bacteria found in the focal infection namely streptococcus pneumococcus group, staphylococcus, bacillus coli, gonococci, tubercle bacillus and typhoid bacillus.

These may exist anywhere on the unbroken mucous surfaces or skin as harmless parasites and on entering a broken surface acquire a very virulent form or on being transmitted to a different host may become the most virulent type. If two or more of these types are found together clinical experience has shown us that each one assumes an increased virulence. This increased virulence however might be due to the general lowering of the defensive power of the host.

Rosenow has shown that bacteria especially of the streptococcus group may acquire "elective affinity" for certain tissues. This elective affinity is greatly brought about by environment. This seems especially true of living tissue environment. "It appears that the cells of the tissues for which a given strain shows elective affinity takes the bacteria out of the circulation as if by a magnet-absorption. This usually disappears on cultivation on artificial media."*

Conditions in the Host Which Modifies Suceptibility to Infection.

Man naturally possesses an immunity to all infections. This immunity is more marked in certain individuals for particular bacteria, while the same person might have a very low resistance for other infections. How-

*Read before the Nebraska State Medical Association, Lincoln, May, 1917.

*Rosenow.

ever this immunity is never absolute and may vary from time to time according to environment, climatic changes, habits, social conditions or psychological state, all of which play an important role in the physical well being of an individual and in turn his resistance to infection.

The individual immunity also depends greatly upon chronic debilitating disease which tends to lower the general resistance to other invading micro-organisms. Uncleanliness or abuse of physical conditions by habit forming drugs and sexual abuse greatly lowers the vitality of the host to infection.

The immunity of the exposed host is characterized by a general and local reaction of the tissues against the invading parasites. This reaction depends upon the virulence of the invading micro-organisms. In some instances it forms a serious or fibrinous exudate accompanied by necrotic or proliferative changes in the tissues involved. These reactions are efforts of the tissues of the host to prevent extension of the invader. The walled off infection may remain localized, the invading organism acquiring a low virulence and adjusting themselves to the parasitic existence or focal infection; under the defensive and offensive powers of the tissues the infection becomes walled off and all the external signs and symptoms of a local infection disappears only to again spring up later when for any of the above reasons the general vitality is lowered. However during this defensive and offensive struggle the infection may also become systemic and the persistence of this general condition will depend upon the resistance of the host.

The systemic invasion may come about through the blood stream or lymph channels. The haematogenous invasion is undoubtedly the usual one. The lymphnodes in the region of the local infection are usually involved but this is in a defensive manner, likewise the lymphnodes of the whole system may be involved in the systemic infection.

When the host has defensive power it forms ferments and antibodies which in turn destroy the invading micro-organisms. The body forms a specific anti-body for each invading bacteria and these specifics in some instances create a life long immunity in the host, as in typhoid or it might be only temporary as in diphtheria. On the other hand the local damage to the tissues might be such

that it increases the susceptibility of the host to recurrence as in rheumatism and pneumonia.

The local reaction greatly depends upon the virulence of the invading bacteria and the greater the virulence the greater the reaction and the less the probability of chronicity of the focus as the local tissues of the host bring out greater defenses and thereby destroying the invading bacteria, while on the other hand if it is a low grade infection the tissue reaction and the formation of antibodies is lacking and a mild local tissue reaction results with but a slight tissue destruction and the persistence of a chronic low grade infection. Nature in its effort of protection will wall this area off. Tissues harboring such a chronic infection have very poor resistance and with slightest exposure and lowering of general resistance we get an acute exacerbation which is usually accompanied by a secondary infection. Even though we do not have an acute attack the system is continually absorbing from this focus and causing remote symptoms and diseases.

Primary Foci Causing Secondary Infection and Their Results.

We have a great number of foci and strains of bacteria causing secondary infection and each has its particular tissue in which it may cause a secondary infection.

The most common primary foci are the tonsils, teeth, genitalia, nasal sinuses, abrasions and mucous and skin surfaces. The other foci of infection are usually secondary to one of the above, and these in turn may act as an infecting foci and cause other remote secondary foci of infection. We have a few exceptions to the above rule as in case of typhoid cholecystitis or fistula in ano, etc. Many foci which formerly were considered primary have been proved to be secondary as in case of appendicitis, streptococcus cholecystitis, peptic and duodenal ulcers which had their original focus in the tonsils or teeth, also surgical kidneys, cystitis, tubercular joints, all of which had their origin in the air passage.

From a streptococcus foci of infection in the tonsils we may get cholecystitis, appendicitis, peptic and duodenal ulcer, acute and chronic nephritis, cystitis, endocarditis, inflammatory rheumatism, pericarditis, osteomyelitis, suppurating joints, asthma, bronchitis, chorea and nearly all varieties of dermatitis, the secondary foci depending upon the strain of the invading micro-organism. The extremely chronic tonsils cause our chronic diseases as arthritis deformans, chronic nephritis and chronic forms of dermatitis.

The nasal passage and sinus infections are responsible for practically the same series of diseases as the tonsils with otitis-media with middle ear deaf-

ness and mastoiditis added to the list. In the chronic low grade infection they are also prone to cause arthritis deformans, arteriosclerosis and chronic nephritis than are the tonsils.

The teeth I find causes very little remote symptoms and disease in the young but on the other hand they are responsible for a great number of the ailments of middle and old age. In a series of 85 cases of chronic nephritis with high blood pressure in fifty-one cases I could attribute the cause to no other source than bad teeth. They had had pyorrhea alveolaris for years and no other focus could be located nor had their habits been intemperate. Also of eighteen cases of arthritis deformans which I have met, nine or 50% were due to bad teeth, and the patients were elevated or the process entirely stopped by extracting all the teeth.

The genito-urinary foci are very prone to cause secondary infection but these are too well known to require much discussion. Following a gonorrhea infection of the genito-urinary organs we may get salpingitis ovaritis, endometritis, cystitis, prostatitis, orchitis, epididymitis, abscess in seminal vesical and prostate gland, endocarditis, rheumatism, etc. From a streptococcus infection of any of the genito-urinary organs we may get any of the streptococcus complications that we are likely to get from the same infection in any other part of the body. The gastro intestinal tract may be the cause of pyelitis cystitis and arthritis.

Secondary foci also have the peculiarity of affecting certain tissues as the streptococcus cholecystitis has an affinity for the myocardium endocardium and may effect the pancreas by extension with resulting diabetes. Appendicitis may cause rheumatism, chorea, dermatitis, toxic pancreatitis and arthritis.

In my practice I have met two cases of chronic chorea which had all the findings of chronic infection. The history indicated a tonsil infection and the pillars were red and tonsils submerged and I firmly believed the cases had their origin in the tonsils. I expect to report the outcome of these cases later. Many neuroses and the majority of our neurasthenics, excluding syphilis are due to a streptococcus focus of infection in some of the common foci.

Diagnosis.

The diagnosis of acute and subacute focal infection is an easy matter as all the symptoms and findings are self evident. On the other hand the chronic foci of infection are usually very difficult and frequently impossible to locate. The first thing to decide is whether or not the existing condition with which we are confronted is due to an infection and if it had a remote origin. Once it has been determined that the condition is due to a remote infection, begin seeking for same. First get a very careful history of previous trouble, usually the history will give a clew as to where the original cause came from. Then if the focus is in the nose, by concus-

sion and pressure over the various sinuses one is usually able to elicit tenderness over the affected parts. The transilluminator should be used to see if there is any obstruction to the rays, shrink the tissues and observe if there is any discharge from any of the sinuses and to observe if all are draining properly.

When you suspect that there is a focus in the tonsil see if the glands in both the anterior and posterior triangles of the neck are enlarged. If they are there is some pathology above; there is also, frequently, an occipital headache, pillars are red adherent to tonsil and frequently by pressing on the tonsils puss will exude. The patient is usually weak and frequently has a visceroptosis. There may or may not be a previous or present history of sore throat. Examine the gums for pus and take X-ray plates of all suspected teeth in order to find if some chronic alveolar abscesses are not present.

As to the other primary foci one is usually able to find them by ordinary methods of examination, but one should not even neglect to examine the toe nails, etc., as I have seen a case of rheumatism caused by an infected ingrown toenail. However when we have located one focus of infection we should not cease our investigation as we frequently find two or more foci in the same patient. We all know the frequency of association of appendicitis, cholecystitis and peptic ulcers with tonsilitis.

In children who are below par physically, their bodies covered with fine hair, skin pale and sallow, enlarged cervical glands, very susceptible to cold or with a chronic bronchitis, frequently having an afternoon temperature and rapid pulse, the types that which our text books describe as a typical case of tuberculosis. Do not be too prone to diagnose these cases as tuberculosis for 80% of them give a negative Von Pirquet. They have an increased leucocytosis from 10,000 to 16,000 with increased polymorphonuclear and on careful examination of the tonsils the pillars are red and adherent to the tonsils. It does not matter how the tonsils appear, remove them, and 70% of them will clear up by removing the tonsils and adenoids. 10% have other chronic troubles and only 20% are tuberculosis and these 20% are very chronic cases and probably began in the same way, the infected tonsil being a good culture media for tuber-

cule bacillus the tuberculosis got a foot hold and spread to various parts of the system.

In all cases of chronic nephritis with high blood pressure be sure and eliminate all possible chronic foci of infection about the air passages and especially the teeth. No person gets a chronic nephritis without an underlying cause.

Treatment.

I have divided the treatment in the four best recognized forms, i. e., the medical, the vaccine, intravenous injection of foreign proteids and the surgical.

The medical treatment for a focus of infection is very limited. If the focus is open and available for local treatment the ordinary recognized methods for local treatments are to be used. If it has become systemic sodium salicylate, a grain to the pound and sodium bicarbonate in twice the quantity is very beneficial especially in the streptococcus infection. If the infected area has become walled off it is of very little avail to use drugs.

The vaccine therapy in my hands has been very unsatisfactory. The only indication I find is in bronchitis resulting from an attack of la grippe. In those cases I had 100% improvement with 75% cures. In only one other instance did I get an apparent cure from vaccines, that was a case of rheumatism which would recur two or three times each winter for the past three years. I could locate no focus of infection in the ordinary foci. The patient had a history of extreme constipation for the past ten years with visceroptosis and impaction of the colon on six different occasions in the last two years. His attacks of rheumatism were closely associated with his attacks of impaction of the colon. I made a culture from the stool and found a pure culture of streptococcus rheumaticus. From this I made an autogenous vaccine. I gave him vaccine treatment and large doses of mineral oil. He has not had a recurrence of his rheumatism or impaction of the bowels, since the treatment was given almost three years ago; his bowels are regular and he has not taken the oil for 2½ years. However, in this case, it is a question as to which was most beneficial, the vaccine or the oil, and to which I should attribute the cure.

I find that the most efficient treatment of focal infection excluding the recognized sur-

gical cases, so long as it is not walled off and there is left recuperative power, is the intravenous injection of a foreign proteid, accompanied by local treatment if such is possible. For this purpose I use an emulsion of killed typhoid bacillus because they are easily available and standardized. In the ordinary adult I use 250 million for the first dose intramuscular, then three days later I give 250 million intra-venously and double this dose at three day intervals unless the reaction should be too violent in which case I give the same dose for the following injection then double the following dose. If the patient is much weakened by the chronic condition the dose should be diminished accordingly.

With this treatment I did not fail in one case to get some improvement and in several cases I got an apparent cure. In some of these cases the result was simply appalling. I now have a series of 21 cases including the most severe arthritis deformans erythema multiformes, lupus vulgaris and erythematosa, endometritis, prostatitis, chronic sores on the skin, etc., with each one showing improvement.

However, it seems that all good therapeutic measures have their failings and disadvantages. The reaction is terrific in some instances and one can never predict what the next injection will bring forth from the reaction of the previous one. It might cause but a slight chill or the chill might be very severe and have any of the symptoms of the onset of some of the infectious diseases, as nausea, vomiting, diarrhoea, pain in the back headache. The chill if it be present is usually followed by a rise of temperature ranging from 99 to 104.6° F. and in some cases a marked herpes may follow.

In spite of the severe reaction, I have never found a patient who refused to take the second dose, because as the improvement was so marked from the beginning that they were willing to suffer the consequences.

If the tissues involved have undergone any marked pathological change or if the focus is completely walled off none of the above treatment will suffice and our only resort is surgery. The question arises, when is a case surgical and when medical? It is surgical if none of the above treatments suffice or if we have walled off pus or if it drains through a walled off canal.

When one resorts to surgery he should search for every other possible secondary foci that might result from this one or from the original cause of the present focus, and all foci should be removed as the cure will not be complete unless all sources of infection are removed.

Discussion.

Robert McConaughy, York.—I do not think the dentist tries to save the teeth for the reason that he wants to get a \$100 bridge on them, but he simply reasons that a tooth saved is much better than one extracted. It is very important to have something to build on and a bridge is better than a mouthful of artificial teeth. It is better not to encourage teeth extraction.

J. Lue Sutherland, Grand Island.—I, for one, would like something definite as to which we should use: autogenous or stock vaccines. This point settled would be a step in the right direction. Park-Davis & Co., are loading our desks with literature extolling the merits of their shotgun vaccines, phylacogens, et cetera, and citing cases in which wonderful cures had been wrought. If the half of this were true no further knowledge upon the part of the doctor would be needed, not even accuracy as to diagnosis. In regard to autogenous vaccines, Dr. Breuer speaks of the difficulty in isolating the organisms, which of course is true. We hope in time this will be overcome and thus place within our hands a truly scientific remedy in the shape of an autogenous vaccine.

W. H. Mick, Omaha.—Relative to the extraction of teeth: We are becoming a little bit radical and are having teeth extracted which might be saved. On the other hand, however, when I see the vast number of people who suffer severely and are relieved by the removal of a few teeth, I feel it is well to remove those teeth which are seriously infected. I have not taken a radical view unless I find well developed abscesses which will not heal with any other procedure.

With root abscesses, it is not sufficient to recommend the removal of the teeth and do nothing further. In some cases a pus sac has been demonstrated years after such removal. Focal infections about the teeth are surgical conditions and should be treated as such and free drainage insured. I remember taking a radiograph a couple of years after an extraction had been done and I found the pus sac still intact.

In teeth affected with pyorrhoea one seldom finds closed pus pockets. I have seen it in a few cases and then it has usually been at the roots of the molars where the infection is rather deep seated. Root infections are more common in dead teeth, although I have found well defined root abscesses at the base of perfectly sound teeth. In some of these cases, the abscessed roots have communicated with the mouth by fistular openings but, in many instances, one could find no evidence of the abscess except by the X-ray.

In many cases, the roots of the upper molars and bicuspid lie very close to the antrum of Highmore and root abscesses of these teeth will easily affect the antrum and then the other sinuses. In taking radiographs of these cases, it is not uncommon to find the frontals, ethmoids or sphenoids or even all the sinuses affected, not necessarily filled with pus but showing a low grade infection. I recall a certain doctor out in the state, troubled with chronic headaches, who was referred to me for X-ray examination of his sinuses. The examination revealed a suppurative antrum of Highmore which was drained with relief. After a time, however, the headaches returned and he came in for a second examination. This time, in addition to the suppurative antrum we found the ethmoids and frontal sinuses infected. We made radiographs of his teeth and found a lingual root infection of an upper first molar, open into the antrum of Highmore. This tooth was promptly removed and the sinuses drained, with complete recovery.

Impacted teeth represent three stages of impaction. In the first stage we have the mal-position of the tooth and the headaches and referred pain. In the second stage, there is the bending of the roots of the tooth against which the impaction is directed. In the third stage, we have erosion and infection. Such impacted teeth should be removed before erosion and infection takes place. By doing this, the tooth against which the impaction is directed will be saved.

In these cases of focal infection, it is well to follow up the cases, for often, under the dentist's care, not all the pathology is cleared up and the patient will still continue in the poor state of health caused by the focal infection.

F. W. Plehn, Scottsbluff.—The remarks of a previous speaker upon the use of vaccines, show there is a decided reaction from the position once taken as to their use. This is true of all new subjects brought before our attention. The pendulum swings forward and then back to a more normal point.

Chorea has been classed as one of the results of focal infection, and there was a time when rhinologists were claiming wonderful things in the way of its relief by removal of tonsils. But I notice now that some of them are beginning to recede from that position, and are admitting that chorea may not always be relieved by tonsillectomy. In fact it has been admitted that in some cases the chorea seems to be worse after the operation.

Within the last year I have seen at least one case in which that was the result. Do not be too positive in your promises to your chorea patients, as to the results from tonsillectomy.

We are having some difficulty in the western part of the state, from lack of cooperation on the part of the dentists, who often refuse to remove the source of local infection in the mouth. It is largely the attitude of the dentist to retain any tooth, that can be crowned or made into a support for bridge work, regardless of the conditions of the gums or the condition at the root, or the condition of the patients general health. One case I remember, had an abscess at the root. The patient was sent to the

dentist with a request for extraction, but he was sent back with word that the trouble could not have come from that, and they did not want to pull the tooth, as it was still a good tooth.

L. M. Stearns, Kearney.—I wish to congratulate Dr. Lemoine on the excellent paper. It has been well worth my trip down here to listen to it. I believe a point that should be emphasized is that in the removal of the focus the systemic and remote symptoms are very apt to be increased by the liberation of additional toxins into the system. If this occurs we may be almost certain that the causative focus has been removed.

Many physicians today are still content to treat their rheumatic cases from day to day without giving the first thought about searching out and removing the focus of infection.

A great deal can yet be done along the line of investigating the results of focal infection especially in determining the reason for the phenomena of selective affinity which certain organisms have for the different tissues.

Miles J. Breuer, Lincoln.—As I am the first to discuss this paper, I wish to congratulate the writer on calling our attention to a matter which has been brought before the medical profession but recently. It is a very important thing, and scarcely a day passes that one cannot find application for it among one's patients. I should like to discuss one little point, in regard to the vaccines. I do not think that the experience of most workers will agree with that of Dr. Lemoine, in finding vaccines so devoid of value. The consensus of experience is that vaccines will give results in 50 percent of the cases. When vaccines were first introduced, they rode on a great wave of enthusiasm. We are becoming more reasonable now, and realize that vaccines will not cure everything. Still, vaccines have their proper place as a very valuable therapeutic measure, as we have come to realize. In the 50 percent of cases which do not respond to vaccine treatment (I refer to autogenous vaccines only, throughout this discussion) the lack of results is due to our not having succeeded in getting the proper organism, or in injudiciously using a vaccine where its use is not indicated. With proper selection of cases, and rigid technic for securing the proper organism, vaccines will be found a very scientific, and very efficacious therapeutic measure.

J. C. Malster, Stromsburg.—If you will permit me to be personal, I will give my own experience. I was troubled for about a year with neuritis of right leg or sciatic nerve, which I thought was traumatic. At times this would keep me from sleeping well at night. When my left arm became involved, I knew it was not traumatic and looked further for the cause. I found by pressing on the outside of the jaw, the roots of the teeth that I was using felt sore. I had an X-ray taken and could see that the roots of one tooth were absorbing but the other not. When the teeth were extracted one of the roots was partly absorbed and the other had a pus sac on each root.

The arm soon became well but the leg or sciatic nerve is not yet cured. On exertion my leg gives out and at no time can I walk on the heel and if I

draw leg up against thigh it is liable to cramp. I believe an X-ray should be taken of the teeth if they are tender at the roots.

A. A. Johnson, Omaha.—I think that the laboratory man is up against it in this vaccine proposition. It is seldom that the history of the case is given when the sample to be examined is sent in and we are not always able to isolate the organism that is causing the disease. Pus is often received containing several different organisms and it is important to get some history in these cases. We do not know whether it is a specific reaction or not. Vaccines have proven to be of the most value in the treatment of staphylococcus and colon infections.

A. N. Lemoine, Nelson, Closing.—It is true that my percent of improvement from vaccine is low. I have had great improvement in a number of other cases which I have not included in the number of recoveries and which apparently were due to the vaccine, but one must not be over enthusiastic with such results unless he is sure the results were due to the vaccine; as in most cases I treated similar cases medically and got equally good results. As to autogenous vaccine the doctor is correct in stating we get better results from this but he says it is very difficult to get the organism causing the remote symptoms as those organisms grow only with much difficulty on artificial culture media and again some are anaerobic and will not grow at all with the ordinary means of making cultures and as a result we get only the secondary infection and not the organism causing the remote disease and symptoms. However, even though we get only the secondary organism we frequently get improvement as it temporarily gets rid of the secondary invader and thus increases the body resistance of the host against the primary organism. If we were always able to get the primary cause of the remote trouble we would get a much larger per cent of cures but I find that the per cent in which we get the proper organism is very small and as a result we get very few cures which we can positively attribute to autogenous vaccine.

Dr. Plehn remarked about chorea and removal of the tonsils: it is true that we do not get results in all cases of chorea by removing the tonsils because our foci causing the chorea might be in any of the other primary or secondary foci, as I have seen one case of chorea cured by an operation removing the appendix; besides we frequently have an incomplete enucleation of the tonsil which is a common occurrence even with our very best operators. Therefore one should always look very carefully for remaining pieces of tonsils in case the chorea is not cured, especially if this was due to the tonsils. One must also bear in mind the possibility of a secondary foci having resulted from the tonsil before its removal.

Acute Osteomyelitis.*

S. S. Wilson, M. D., Nebraska City.

Acute suppurative osteomyelitis is, so far as we know, always the result of a bacterial infection. The "spontaneous" variety is

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probably always a metastatic infection from some recognized or unrecognized primary focus elsewhere in the body. This primary focal infection may be acute or chronic. Its essential feature is that it allows pyogenic organisms to enter the blood-stream, where they circulate until they find a nidus suitable for their growth; for instance, a bone which has recently been subjected to a trauma. We do know that these infections are caused by pyogenic bacteria, because they have been repeatedly grown in culture from the pus of these cases; and these cultures being reinjected into animals, generally young rabbits, have reproduced the disease. The organism most frequently found is the staphylococcus pyogenes aureus—less frequently the albus. The typhoid bacillus, the *B. coli communis*, and the pneumococcus do rarely cause the infection. The staphylococcus pyogenes aureus is the one we recognize as producing the typical cases of osteomyelitis where we find severe symptoms, massive bone destruction and pyemia, unless diagnosed early and provided with prompt drainage.

In the days when I was a medical student we heard a good deal about spontaneous osteomyelitis, and cryptogenic osteomyelitis. "Dirt," unrecognized "pricks and scratches," "winter months" and "infrequent bathing" used to be frequently mentioned as causes. The really obvious fact that all spontaneous infections of the medullary cavity must arrive by the blood-stream was rather generally overlooked.

So we have come to believe that all these cases are suffering from a mild septicemia at the time of the inception of an acute suppurative osteomyelitis. It usually takes a trauma or an injury to locate the general infection in a bone. This observation is established clinically and experimentally. Rosenbach produced osteomyelitis in young rabbits by injecting pyogenic cocci into their blood-stream and then producing subcutaneous injuries to their long bones. Ullmann accomplished the same results by ligating an extremity in infected young animals. Lexer and others have produced osteomyelitis in rabbits with staphylococci infections alone, without producing artificially any local change in the bone; but most animals without an artificial locus minoris resistentiae so infected have died rather promptly of pyemia and suppurative nephritis before osteomyelitic pus foci have had time to develop.

The osteomyelitis patient usually gives a history of acute or chronic focal infection of some sort, and from this focus micro-organisms have begun to circulate in the blood-stream. They do not make themselves manifest until they find lodgement as a septic embolus in the end of a long bone. This localization of the infection is usually associated with a trauma, and often preceded by an exposure. In twenty-four hours after the onset of the infection the patient is completely out of commission, because the infective microorganisms arrested within a solid bony wall are producing their destructive metabolic products under pressure, thus making a severe local as well as a general reaction. At this time the physician, is called upon to make the diagnosis, and there are many chances that he will call the condition rheumatism, and thus become an expensive ornament to the patient's environment. The inflammation lying deep in the bone, one cannot demonstrate its presence by superficial pressure. There is no tenderness on superficial pressure at first. It is only when the soft parts become invaded by the infection that superficial tenderness appears. Because the inflammation causes pain in the neighborhood of a joint it is often diagnosed "rheumatism" by the general practitioner. There is no effusion into the joint early in an osteomyelitis. There may be an effusion present in the joint late in an osteomyelitis, when the focus of suppuration has ruptured into the articular cavity.

In acute arthritis there is superficial tenderness over the joint, whereas in acute osteomyelitis the focus of tenderness lies over the bone, either above or below the joint, and this tenderness is only on deep and prolonged pressure—not to superficial pressure. As the inflammation spreads it extends not only longitudinally inside the bone, but also rapidly works its way to the surface through the pulp-canals, and soon forms a subperiosteal accumulation of inflammatory products. The subperiosteal inflammation may then rapidly spread and separate the periosteum from the bone over a wide area. The amount of necrosis depends on the virulence of the infection and on the promptness and thoroughness with which surgical measures are instituted. If the surgeon is to be of service to the patient he must relieve the pressure inside the bone. The surgical situation is like that in a boil or in

a phlegmon—take off the tension and the destruction stops. If you do not receive the case until the end of the first week, however, when the bone is already destroyed and a large quantity of pus is present, drain the pus. Do not try to remove the dead bone, for it is not yet separated from the living. The surgeon must wait until nature has separated the sequestrum from the living bone before attempting to remove the necrotic fragment. Especially is meddlesome surgery to be avoided if the whole shaft of the bone is destroyed and the periosteum elevated, but not destroyed. Drain the pus, but leave the bone. Then when the dead bone has separated as a sequestrum from its attachments, in four, five or six weeks, still leave it alone. If such an extensive sequestrum were removed nothing would be left to support the living periosteum, which is still osteogenic even when it is elevated from the bone in that way. If the sequestrum be removed the periosteum will collapse and its two inner layers come in contact. Then very little, if any, new bone will be formed; certainly not enough to support the limb.

If the entire shaft is destroyed, permit the sequestrum to remain for months—six months, ten months, twelve months—until a complete involucrum of periosteal bone is formed entirely surrounding the sequestrum. Then wait until that involucrum becomes strong enough to support the limb; otherwise the latter will contract and deform from the contraction of the neighboring muscles which have lost their support. When the time comes to remove the sequestrum do it thoroughly—do not make a small opening, expose the entire sequestrum in all its ramifications and do not leave any fragments. A thorough and complete operation will cure your patient.

Like most of the acute infections, osteomyelitis is primarily a problem of the general practitioner, and on the shoulders of the general practitioner rests the chief responsibility as to whether these patients live or perish, or if they do live, whether they have the usefulness of their limbs preserved for them or not.

Discussion.

W. L. Sucha—As the doctor said in his paper, these cases are first of all cases for the general practitioner, and a very important factor in leaving

the patient in good condition, is an early diagnosis, and in these cases thorough drainage to the medulla really cures practically every one of them. One thing that kept us so long from making these early diagnoses was failure to connect the primary disease from which the metastasis occurs with the bone infection or joint infection whichever it might happen to be. From the fact that but very few diseases metastasize in bones or joints during the active processes of the disease. The metastasis coming usually after the acme of the disease is past with one exception, streptococcus will metastasize during the progress of the disease, but the others seldom do. Typhoid and pneumonia and others usually metastasize after the acute stage of the disease is past.

In regard to treatment, the medullary drain will cure perhaps 95% of these cases if it is instituted within two days after the metastasis has taken place. But I agree with Dr. Wilson that after pus has been formed the proper thing to do is to have drainage and wait for the sequestrum to form. Unless you wait for the sequestrum to form and do your big job after sequestrum has formed you are bound to get a bad result in a majority of cases.

S. S. Wilson, closing: All cases should have a medullary drain within 48 hours of the beginning of the disease. In those cases which involve the femur and early treatment has been neglected, we must wait, make thorough drainage to prevent pyemia—make use of Dakin's solution—then wait months, if necessary, until the involucrum is strong enough to support the limb, then the dead shaft can be removed.

Temperature in Children.*

Frank T. Hamilton, M. D., Friend.

In the illness of children, the most constant symptom we meet with is some deviation from normal temperature, anywhere from hyperpyrexia to subnormal. The first thing that usually calls the mother's attention to her ailing child, is a rise in temperature; and it is for this condition that we are most often called to give a solution, a prognosis and remedy. In counter distinction to the adult, the rise of temperature in a child is generally higher, and the variations more sudden. Just before birth, the infant's temperature is generally somewhat higher than that of its mother's uterus. After birth and during the first few weeks the temperature remains fairly constant, but still a little high. There is a fall of one-tenth to two-tenths from infancy to puberty. It appears from observation, according to Kerley, that the temperature in well children varies from 98° F. to 99° F., but when it rises daily above 99.5° F., some abnormal condition is invariably found to explain it. An occasional rise in temperature may be distinguished from fever as in nervous hyperpyrexia, which appears in acute diseases of all kinds, localized in the pons or in the medulla oblongata, also in the rise of temperature which appears in epilepsy, and in some functional nervous diseases, and in mental or bodily fatigue or excitement, or any circumstances that shock the nervous system.

*Read before Nebraska State Medical Association, Lincoln, May, 1917.

It is evident the causes of fever act through the nervous system, and thus produce derangements of the heat-regulating function. At the same time they also produce derangements of the normal tissue changes with increased oxidation and heat production. These causes consist of soluble toxic substances circulating in the blood and are (1) the result of infection by micro-organisms, which may be general or local; or (2) the result of intoxication, which may arise within the body itself from faulty metabolism or be introduced from without, as in food poisons. In cases of infection with profound nutritive disturbances, toxins derived from both of these sources are present. In either event whether the fever-producing agent be a toxin produced by growth and development of micro-organisms or an albumose, ferment, or ptomaine produced by faulty cell metamorphosis within the organs or tissues themselves, the condition constitutes a toxæmia. It seems that many different pathogenic principles developed within the body or introduced from without, are directly or indirectly capable of producing the reaction which we designate by the term abnormal temperature. Elevation of temperature alone does not constitute fever. The rise in temperature may not have the symptoms that we associate with fever. The symptoms which enter into the modern conception of fever are, in addition to elevation of temperature, subjective sensations of illness, cerebral phenomena, weakness, loss of appetite, thirst, increased frequency of pulse and respirations, altered urine and derangement in nutrition which cause wasting of the body. These symptoms are not altogether dependent upon or caused by the elevation of temperature, as shown by the fact that artificial overheating of the body produces certain of them but not all, that in different diseases their intensity by no means corresponds to the degree of temperature, and that marked falls of temperature can occur either spontaneously or as the result of antipyretic treatment without a corresponding amelioration in other respects. Elevation of temperature in certain cases in the illness of children may dominate the clinical picture. In a majority of instances, however, the associated conditions constitute a much more important measure of gravity of the case than the range of temperature.

In one regard hyperpyrexia in children is apt to become unpleasant early. The nervous system is very excitable and reacts to high temperature with somnolence and stupor or with unrest, jactations, and often with stormy delirium, and even convulsions. A rapid rise of temperature, which in adults is often associated with chills, in children is frequently followed by general convulsions, resulting from the greater excitability of their spastic centers. This condition is often the cause of great diagnostic difficulty, but fortunately often passes leaving no trace behind, unless the general febrile condition which produced these symptoms becomes localized in the central nervous system. The treatment of fevers must correspond to the peculiarities of the child's organism. The child's body has a much greater surface in relation to its volume than that of adults. It is enough to remember the axiom that the volume increases as the cube, the area as the square, in order to understand this relation which empirically has been studied very carefully. This pointed out

the way for our antipyretic action to withdraw the heat from the surface of the body. Heat dissipation takes place mainly through the expired air, and conduction, radiation, and evaporation from the skin. As from 77 to 85 per cent of the total heat loss passes off from the cutaneous surfaces, the skin must be considered as the principle factor in heat dissipation.

Practical experience corresponds to this theoretical consideration, that cold and warm moisture should be very effective in treating rises of temperature in children. A great part of the success of hydrotherapy is that it not only decreases the temperature, but it also at the same time has a favorable influence on the other symptoms—the sleeplessness, delirium, stupor, heart failure, and other annoying conditions are effectively combated. This treatment may be carried out in several ways: By compresses on the trunk for ten minutes to one-half hour, by partial bathing, by a bath varied to the strength of the child, by cold drinks, and by luke warm to cool enemas. Sponging with plain water, with salt water, or with alcohol water is one of the easiest ways of reducing high temperature. Cool sponging at 75° F. to 60° F., plain or medicated, is useful for two purposes: as a sedative and a reduction of fever. Sponging for fever, while possessing less antipyretic value than do other measures, such as a cool pack, for example, has the advantage in that it is safe and easy of application in the hands of the most unskilled, and will be of assistance in influencing high temperature when other means are not available. The cool pack, properly applied, is free from the slightest danger to the patient, and is the best means we possess with which to combat a continued high fever. The pack may be used as freely and with as much success in treating the exanthemata as in dealing with typhoid fever or pneumonia.

In reducing a high fever it is well to take the temperature frequently, as we do not know how the fever will be affected by continued cool application. In some children it is very readily influenced, and in such a case collapse might follow a very sudden reduction of the temperature. Suddenly enveloping the entire skin surface in a cold sheet at 70° F. may increase the temperature and occasion grave symptoms of impending death, because of the sudden contraction of the superficial blood vessels, which sends the blood to the viscera, producing congestion of the internal organs. I have found that a warm pack, with cold to the head, will give good results in some cases and conditions where other means fail. As soon as the child starts to perspire, the various symptoms have a more favorable aspect. The condition of the excretory organs holds first place in the influence on the abnormal temperature, and the sooner we get them to working, and keep them thoroughly so, the easier we may control this situation. One of the first aids in doing so is water used both externally and internally by enemas and drinking frequently of water, lemonade and teas.

There are a host of drugs that are, and have been used, to reduce fever, but they all must pivot on the cause of the abnormal temperature. Among the most frequent, when indicated, I use aconite, bryonia, veratrum viride, phenacetin, and atropine. These drugs I invariably have combined with some

other drug to meet some other condition in hand. When I see a little patient that has an increased pulse rate, increased blood pressure, and increased body temperature, I use aconite, especially as it is the greater regulator of acute inflammatory diseases. But I would leave the drug in the grip when the pulse is feeble and easily compressible, respiration embarrassed, extremities cold or skin pale. In the temperatures in subacute conditions, associated with inflammations of the serous, synovial and mucous membranes, we think of bryonia. *Veratrum viride* would be my choice in febrile cases where the fever is extremely active, the pulse bounding, the heart's action strong, and the little patient robust. I would select atropine when the skin is pale, cold and clammy, or dark and a venous congestion, when the pulse at the same time is feeble, easily compressed, and when the respiration is faltering and feeble; when the pupils are contracted and the temperature subnormal. When phenacetin—which should be combined with citrate of caffeine—is used, a close watch on the heart should be kept.

MILITARY NOTES.

Dr. C. P. Breen of Western was home for a few days from Fort Riley.

Dr. Wilbur K. Mylar of Kimball has gone to Fort Riley for service in the army.

Dr. J. R. Beatty of Butte has passed the examination and been accepted for service in the army.

Dr. C. E. Mullinax of Hayes Center left for his home in Missouri to await orders from the war department.

Dr. Carl A. Meyer of Newman Grove received a commission as first lieutenant and has been ordered to Fort Riley.

Dr. Torrence C. Moyer of Lincoln as first lieutenant in the medical officers' reserve corps left for Fort Oglathorpe, Georgia.

Dr. John A. Tamisea of Omaha is now in London with the first detachment of American physicians and will proceed to France.

Dr. R. R. Reed of McCook received orders to report at Fort Riley. He has been commissioned as first lieutenant in the medical reserve corps.

Dr. C. R. Laird of Blue Hill has been notified of his appointment as first lieutenant in the medical department of the officers' reserve corps.

Dr. Chas. E. Frost of Craig is now assigned to the Oregon field hospital corps as first lieutenant. The company left Portland early in September for Garden City, Long Island.

Dr. Lynn T. Hall of Omaha received his appointment as first lieutenant in the army medical corps. He will be assigned to the Omaha ambulance company. Temporarily he has been assigned to duty with the Eighty-fourth division of the national guard in Louisville, Kentucky.

Dr. J. P. Lord of Omaha has been called to Fort Riley. In addition to a large practice which he is voluntarily leaving to assist in war work Dr. Lord was professor of orthopedics in the University of Nebraska College of Medicine.

Dr. W. E. Talbot received notice to report as soon as possible to Camp Baldwin near Denver. Dr. Talbot was mustered out of the regular army at the close of the Spanish-American war as captain. He was for some time health officer at Manila.

Dr. Judd A. Strong of Kearney received his commission as captain in the medical reserve corps and was ordered to report at New York. Captain Strong will work in the demonstration hospital of the Rockefeller Institute under the famous French surgeon, Dr. Alexis Carrell.

According to the Manchester Guardian, an English paper, American medical officers will take over charge of the military hospitals at Manchester, Salford, Liverpool, Leeds, Birmingham and Cardiff and the civil medical practitioners at present in charge of those hospitals, will be informed that their services are no longer required. Eleven American medical officers have been allotted to Manchester. It is understood that the reason for the change is that the services of the civilian doctors are required for the needs of the population who have been inadequately served, owing to the attendance of so many physicians at the hospitals.

COUNTY SOCIETY NOTES.

The Northeast Nebraska Medical Association met in Laurel October 3d.

The Madison County Medical Society met in Madison with a large representation of the medical profession of Madison county present. The discussion on "Summer Diarrhoea," was led by Dr. A. E. Gadbois, president of the society. The next meeting will be held in Stanton. Stanton county has no organization of medical men and the doctors have joined the Madison County society.

At the quarterly meeting of the Gage County Medical Society held in Wymore, Dr. E. A. Tenney, state commissioner of public health, met the local doctors and explained the work of the new department of which he is the head. The physicians present were Drs. Pickett and Thomas of Odell; Lee of Pickrell; Gillespie of Wymore; Schooling of Blue Springs.

The Medical Society of the Missouri Valley held its thirtieth annual session in Lincoln. The following officers were elected: President, A. I. McKinnon, Lincoln; first vice president, T. M. Paul, St. Joseph; second vice president, Paul E. Gartner, West Hampton, Iowa; treasurer, O. C. Gebbart, St. Joseph; secretary, Chas. Wood Fassett, Kansas City. The next meeting will be held in Omaha, September, 1918.

The physicians of Cedar county at their recent meeting in Hartington passed resolutions to the effect that the physician who remained at home would care for the practice of the doctor who was called into the army, and at the close of the war return

his practice. It was also agreed that the doctor who remained at home was to receive two-thirds of the fees of his fellow practitioner's practice and the doctor in service was to receive the remaining third.

NOTES.

Dr. H. Farrell formerly of Axtell has located at Kearney.

Dr. Earl Wise has taken Dr. Taylor's practice at Ord.

Dr. Charles B. Edwards of Overton has been called to the army.

Dr. G. A. Harris of Valley had the misfortune to break his wrist while cranking his car.

Dr. Thomas Lahners, Jr., who recently graduated from Rush Medical College has gone into the army.

The Commercial Club of Scottsbluff has appointed a committee to devise plans for the erection of a hospital.

Dr. H. W. Wightman who has been for several years professor of surgery in the Creighton Medical College at Omaha will locate in Gering.

Dr. J. P. Gilligan of O'Neill attended the meetings of the Missouri Valley Medical Association at Lincoln going from there to Saranac Lake and Elizabethtown, New York.

NECROLOGY.

Dr. Robert C. Knode, formerly of Omaha, who has been practicing at Gering, Nebraska, for the last few years, was killed instantly near Burns, Wyoming, when his automobile turned over on a sharp curve. J. C. Clarke of Scottsbluff who was with him was also killed. Dr. Knode was a brother of Dr. A. R. Knode of Omaha.

Book Reviews.

The Highway of Death, by E. B. Downer, M. D. Octavo, pages 209. Illustrated. Price \$1.50. F. A. Davis Co., Phil. 1916.

The author conveys a graphic description of his experiences of Serbia, of Belgrade thrice taken by the opposing forces, and the wonderful work of the American Red Cross both in field hospitals established in abandoned buildings and in the Hospital Militaire at Belgrade. These real experiences of an American doctor bring before us a realization of the dangerous position of the surgeon on the firing line and make clear the reason for the very high mortality of the medical profession on the battle fields. The book is also most interesting from the historical

standpoint and will no doubt rank among the best literature on the war.
H. W.

Nutrition and Clinical Dietetics—By Herbert S. Carter, M. A., M. D., Associate in Clinical Medicine, Columbia University; Associate Attending Physician to the Presbyterian Hospital; Consulting Physician to the Lincoln Hospital, New York; and Paul E. Howe, M. A., Ph. D., Assistant Professor of Biological Chemistry, Columbia University, New York; and Howard H. Mason, A. B., M. D., Instructor in Diseases of Children, Columbia University, New York; Associate Attending Physician to the Presbyterian Hospital; Attending Physician to the Ruptured and Crippled Hospital, New York. Philadelphia, Lea & Febiger, 1917. \$5.50.

This is a book written from the practitioner's standpoint. A reference to various topics selected from the index will at once reveal the wealth of usable material contained in this volume. An important feature consists of the sample diets which show in concrete form that definiteness of direction which is so often lacking in dietary recommendations. Part II on Feeding in Infancy and Childhood and Part IV on Feeding in Disease constitute two-thirds of the bulk of the volume and here the needs in specific pathological conditions are abundantly met. The underlying scientific data are presented in Part I on Foods and Normal Nutrition and in Part II on Foods.

The practical attitude of the authors may be inferred from the first sentence of the preface: "In presenting this book the authors are conscious of the fact that dietetics is far from a mature science and that a book founded entirely on facts proved in the laboratory is as yet impossible." All are aware of the intense interest which economic conditions due to the war have aroused in the subject of nutrition in both health and disease. Much permanent good will no doubt remain after the war to the American people, who are the world's greatest physiological sinners in their nutritional methods. In this connection it is however very interesting to note, as recognized in the clinical aspects of the present volume, that the entire subject, from the pathological standpoint at least, is still highly empirical and leaves room for much experimental investigation at almost every point. To the physician therefore this book will be especially welcome because it presents results whose utility rests on the empirical as well as on the available scientific foundation.
A. W. P.

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A New Appreciation of Mastoid Operations.*

J. J. Hompes, M. D., Lincoln.

It is my purpose in this paper to try to prove to the profession of this state that the attitude we have always taken toward chronic discharging ears is wrong.

The attitude taken according to my observation has been about this: We do what we can to relieve the condition, but eventually, in the stubborn cases, we are inclined to grow tired to the extent of hoping that the patient will see some other doctor. Ofttimes, the patient does this and occasionally is benefited by the change, but, if the discharging ear is inconsiderate enough to get well under the other doctor's care, we are none the less skeptical. We come to expect from our experiences, that after these cases have at-

tained a certain degree of chronicity they are fickle and will certainly begin to discharge again with little or no provocation. Moreover, this condition keeps on until the patients become as discouraged as the doctors and are reconciled to the loss of hearing and the inconveniences and dangers of a chronic discharging ear.

We must come to a full realization of three things, namely, the loss of hearing, the inconveniences and the dangers of such ears, before we will admit that our position is no longer tenable. For instance, what have we been doing for the individual who has already lost the hearing in one ear and now presents with a chronic discharging ear that threatens to destroy what hearing remains. Will we be satisfied when our own hearing is at stake to go on irrigating with salt solution until we are totally deaf? I think not. On the other hand, we will be willing to undergo

*Read before Nebraska State Medical Association, Lincoln, May, 1917.

a great deal for a bare chance of saving even partial hearing.

To deal with ordinary every day conditions, what is the meaning of the loss of hearing in just one ear? Do you realize that deafness in one ear means that the patient has lost the power of sound orientation; that he cannot tell from which corner of a room he is being called but must turn completely around to locate the person calling him?

Just imagine yourself, deaf in one ear and seated as many of you are with a stranger on either side. You enjoy an occasional remark on a point in a paper that is being read, with scarcely a break in your attention to the work in hand, but you become utterly distracted by the occasional remark that you know is being directed to you from the deaf side. To appear civil an explanation is necessary no matter how embarrassing to you or how much disturbance to those around you it may cause. In addition to such annoyance people with one ear have to make a greater effort to hear anything like as well as the normal individual. This may be due in part to constant use of one ear when normally we can put the strain first on one and then the other but, in addition there seems to be a loss of something that might be called sound perspective, a loss of tone coloring and quality that puts these individuals on a constant strain that can be read in their faces. Then, there are the added worries of negotiating traffic where approaching danger is sensed through our ears and we leap from harm's way before we could possibly have a chance to see from what we were trying to escape. The worry of having to sleep on a certain side in order to have the ordinary protection that hearing gives us when we have slipped into unconsciousness, and the worry that would become many times multiplied to any of us with the slightest ache or pain in the remaining good ear.

In addition to the many inconveniences of deafness, one must be further bothered by the daily painstaking hygiene that is necessary to keep discharging ears clean enough that they do not emit odors.

Have any of you carried a foul smelling, running sore around with you, month after month and year after year, carried it to your church, your club, to your every social engagement and to those with whom you are

closely intimate; can you imagine how much peace of mind such an inseparable companion would cost you; and yet that is what we have in a chronic discharging ear.

I have seen people who complained of headaches that required morphine for the alleviation of the pain until the affected ear began to discharge again. In fact all of us have seen cases where the poor general health was undoubtedly of otic origin. Such cases are not uncommon and only suggest the possibility of more grave complications. Indeed the great insurance companies have gone a step further and say that it is not only possible but most probable for they have long since refused to take a risk with a discharging ear. Nearly every medical journal one picks up contains reports of cases that come under the head of intercranial complications of middle ear abscess and yet you and I are in the habit of allowing our closest friends to carry one of these abscesses around without any thought of moral obligation. Without going further I believe that we all concede that such a condition should be eradicated but the question that naturally arises is this: is the treatment worse than the disease? I do not think so.

To begin with, most of these cases are the result of the combined ignorance and neglect of patient and doctor. Most of them can be prevented and most of them can be cured without radical intervention if they come under competent treatment within three or four months of their onset. It is not to this class however that I look for my excuse for this paper but to that class of cases in which it has been clearly demonstrated that treatment will not effect a cure. In this class of cases I believe that a mastoid operation is indicated and for the following reasons: In the first place, a goodly number of these cases come to operation because of dangerous complications and in this stage of their evolution, the mortality is around 20% and of those that recover, there is an appreciable loss of hearing in 90%. This is in cases where the radical mastoid operation must be done. Secondly in a report of four hundred twenty-eight operations done by five different operators where the Heath operation was used there were only two deaths or less than one-fourth of one per cent and the results in hearing ran from return to normal in many to marked improvement in nearly all of them. A few showed no change in hearing probably

due to internal ear complications before operation. I think that this report is enough to show that a relatively early operation not only removes the danger but offers a chance of restoring function and all without an unreasonable risk to life.

If we are to gain anything in surgery of the ear, two things are necessary. First the man in general practice must come to a greater appreciation of the seriousness of discharging ears and secondly the aural surgeon must awake to the fact that his art, like other surgery, must be brought to apply to the conservation of the function of the organ, unless he is to remain a simple curreter of mastoid abscesses when emergency demands.

Discussion.

J. M. Patton, M. D., Omaha.—Dr. Hompes has given us a most practical paper and there is not a word in it that we should not heed. It is generally recognized that people do not die from mastoid operations but they do die from not being operated on at the right time. The laity have a wrong impression of mastoiditis. They shrink from having an operation because they have heard that it is very serious. We should teach them and we should teach ourselves that the danger is not from intervention either in the acute stage or for the relief of a chronic condition, if performed at the right time, but there is danger if we neglect or disregard these things until they have reached a stage where surgery is ineffectual.

Frederick F. Teal, M. D., Lincoln.—I feel that this view of Dr. Hompes' is one that is going to be accepted more and more. In my judgment the patient who goes around with a discharging ear, particularly the foul-smelling kind, is worthy of our best efforts. We never know when it is going to cause trouble. We have not had the nerve to take the stand that Dr. Hompes takes. However, ears will not always cease discharging even after a radical mastoid is done, for the reason that when we turn the mastoid cells and auditory canal into a common cavity there are occasionally little spots of tissue that are not covered with epithelium and we get a certain amount of moist discharge. The patient has an idea that he has had the operation for nothing. I think if this were explained to patients and we did more of this work in this type of case, we would enlarge our field of usefulness as aurists.

Dr. Hompes, closing: I want to thank you for your generous discussion and to ask the doctor, who claims to get results from X-ray treatment of mastoid infections, to give us a detailed report of his work, that we may have some scientific data to go by. Most men with the technique with which they have been acquainted have derived no results whatever from X-ray treatment.

There is one other thing that I meant to include in my paper regarding the time of beginning of our chronic discharging ears. We all know that the history of these cases often goes back to early child-

hood. When the patient had a gathering in the ear and there was a swelling behind the ear that finally went away. This swelling is the thing to my mind that leads to future chronic trouble for the reason that it contains a dram or more of pus that has to find its way out through the antrum and attic, flowing over the ossicles and through the hole in the pars tensa. This gives opportunities for erosions of tissue that tend to chronicity and all the accompanying complications that might be avoided by making a free incision in this swelling and thus give a direct route for drainage through tissue that can better withstand being bathed in virulent pus.

The Effect of Sinus Disease on the Eye.*

Frederick F. Teal, M. D., Lincoln.

Diseases of the sinuses can cause distressing and sometimes dangerous conditions affecting the orbital contents in a number of ways. Briefly these conditions result in a large number of instances from:

(a) Extension of acute or chronic inflammatory changes in the sinus to the orbit.

(b) Pressure resulting from collections of acute or chronic inflammatory secretions in the sinuses, which is exerted on the optic nerve or the globe itself. This pressure may also be produced by the presence of mucocoele or malignant growth in the sinuses.

(c) The toxemia produced by absorption of poisons from an acute or chronic empyema of a sinus may readily produce a retro-bulbar or optic neuritis.

Orbital changes due to direct extension from sinus disease probably are produced as follows: The mucous membrane of the sinus being bathed for a considerable period in pus, becomes macerated and finally loosened from the underlying bone and periosteum, ulcerating through and attacking the periosteum in like manner. Necrosis of the bone finally completes the opening to the periosteum lining the orbit where it is but a short process toward perforating the periosteum and entering the orbit.

Any one of these sinuses, maxillary or antrum, frontal or ethmoid may have a communication into the orbit in this manner. Occasionally a dehiscence may exist in the bony partition, which offers a ready entrance into the orbit. An injury to the sinus or pressure necrosis from new growth may also establish the entrance. The ethmoids are more often responsible for such a condition

*Read before the Nebraska State Medical Association, Lincoln, May, 1917.

because of the thin wall (or lamina papyracea) separating them from the orbit.

The effects of a rupture into the orbital cavity are varied. If due to accumulation from an acute sinusitis, an abscess or phlegmon of the orbital cavity results which may be shown by a sudden dislocation of the eye, swelling and infiltration of the eyelids. High fever and prostration are usual accompaniments. If the purulent mass be forward and comes from the ethmoids a fluctuation, and crepitus of the lamina papyracea may be felt. Paralysis of the ocular muscles, optic neuritis and thrombosis of the retinal artery are common.

In rupture from a chronic process in a sinus, the symptoms are not acute, the eyeball is dislocated gradually, chronic edema of the eyelids occurs early. Abscess may rupture near the inner corner of the eye. If this does not take place or the collection is not evacuated, the pus may work back into the cranial cavity. If the abscess opens or is opened early the eye may recover almost completely. Otherwise (and more commonly) we get optic neuritis and atrophy with blindness, paralysis of the ocular muscles and of accommodation and even panophthalmitis.

(b) Pressure. Mechanical pressure of a sinus on the structures of the orbit or some portion of the optic nerve or chiasm, containing a pyocele, mucocele or new growth, is an insidious and slow-growing factor in the production of eye pathology. Dislocation from frontal sinus pressure is downward, and forward and from ethmoidal, downward, outward and forward. From the antrum upward and outward. The sphenoid pressure on account of the intimate relation with the optic nerve or chiasm is more often responsible for optic nerve changes shown by reduced fields of vision, lowered vision and enlargement of the blind spot of Marriotte. This latter symptom is almost pathognomonic of either sphenoid or posterior ethmoid disease effecting the chiasm or optic nerve. In connection with optic atrophy, due to sinus disease, Skillern of Philadelphia lays great stress on a peculiar type of headache which he claims is constant—namely intermittent paroxysms of excruciating headache, which is deep seated and often comes on at night.

Dr. Luther B. Peter, of Philadelphia, who has given us within the year, the only book published on perimetry in the English lan-

guage, has given much study to the effects produced by sinus disease on the eye. In this connection he states: "Because of the proximity of the posterior ethmoid and sphenoid cells, optic nerve symptoms may be present before necrosis of the bones has taken place, either by means of the blood stream as a carrier of infections or by a simple congestion. The dura mater covering the nerve is continuous with the periosteal covering of the bone in the optic foramen. An inflammation therefore may promptly spread from the air spaces to the nerve and produce a perineuritis. If the peripapillary fibers of the retina are located in the periphery of the optic nerve, as claimed by Fuchs, early enlargement of the blind spot in posterior sinus disease is easily explained."

(c) Toxins—These may be demonstrated in the blood, and are oftener the result of sphenoiditis. The more common results are a muscular asthenopia and loss of accommodation.

The lessons to be derived from the few points brought out in this short article are first—examine the nose in every case applying for refraction. Second, use the perimeter whenever there is the slightest suspicion of sphenoidal or posterior ethmoidal empyema. A consideration of these two suggestions may help us in the solution of some puzzling cases.

Discussion.

J. J. Hompes, M. D., Lincoln.—Dr. Teal's paper covers the ground so thoroughly and there is so much evidence on every hand of the pertinence of the points made by him that it would seem that further proof would be unnecessary. However, at the risk of being monotonous, I wish to report a case of muscular trouble in a woman of fifty that went through all the stages of muscular asthenopia to a paralysis of the internal rectus of right eye, all muscular symptoms clearing up after the drainage of an unusually foul maxillary empyema.

S. E. Cook, M. D., Lincoln.—Headache on one side, especially tenderness, always suggests some sinus trouble. It not infrequently is the case that patients come in to be refracted on account of headache and we find inflammation of the frontal sinus or perhaps of the anterior ethmoid cells, or possibly the antrum of Hymore. The patient presents himself with the eye watering, congestion of the conjunctiva, although that is not so common, and on superficial inspection he apparently has an attack of conjunctivitis. A large proportion of these cases, however, is due to inflammation of one or more of the sinuses, possibly only in the initial stage, where there may be congestion only, without the formation of pus. We usually can give relief by treating the congestion of the sinus. It is astonishing how many

of these cases have turned up during the past spring months, resulting probably in many cases from the grippe, in some cases from simple coryza. I have no doubt that many of the light cases are frequently overlooked, and it is my habit to make a routine examination of the nose where patients come in with a one-sided headache and where there is no other obvious cause. It is not common to have sinus inflammation on both sides at once, although occasionally it occurs, especially in the case of the frontal sinus. The same thing is doubtless true in the case of the sphenoidal sinus, but double trouble with the other sinuses is rare. It is not strange that where any of the sinuses in close proximity to the eye become acutely inflamed, that the eye should be congested and lachrymation stimulated.

Dr. Teal's paper has brought out the other points so remarkably well that there is very little that can be discussed critically. The points I have mentioned seem to me important.

J. M. Patton, M. D., Omaha.—I want to mention one point, namely, the absolute importance of establishing the etiological factor in each case of orbital cellulitis. These cases are not infrequent and can often be traced to a deep styne or possibly some easily recognized acute condition in the nose. On the other hand, the trouble may come from one of the accessory sinuses and if so, the case may develop to a fatal termination, not from the orbital cellulitis but it is obvious if the infection is sufficiently severe to cause a necrosis of the external sinus wall, it may also erode the inner table, resulting in meningitis and death. Never rest easy in a case of orbital cellulitis until you have exhausted every possible means of determining the cause even to the point of an exploratory operation on any suspected sinus.

Dr. Teal, closing: My only point in bringing up this subject was to start a discussion such as we have had and throw a little light on something that I feel the doctors do not pay enough attention to. I limited my paper to the effect of sinus diseases on the orbital cavity and did not take up the subject of aetiology treatment, etc.

Conservation of Vision and Hearing.*

E. C. Hayman, M. D., Lincoln.

As physicians we know that the efficiency of each individual is dependent upon good vision and good hearing. We know that those with defective hearing and vision are handicapped in the struggle for existence. Those who are blind and deaf are dependents and, as such, are of no economic value to the world. Likewise those with defective vision or hearing have a limited range of usefulness.

Most defects of vision and hearing are due to preventable causes. Defective vision is most always due to preventable industrial accidents, or is the result of the neglected eyes of children. Defective hearing is most often

caused by neglected adenoids in children. As for the defects of vision caused by industrial accidents, I would say that workmen's compensation laws are doing much to overcome them. Most industrial accidents are due to injury from small pieces of steel, nails, staples, or chemicals which fly into the eye. These may all be prevented by protective glasses, and so it is that employers who must pay for destroyed eyes are requiring their employees to wear glasses while engaged in hazardous work. This type of defective vision will be largely prevented because of the saving in money which it accomplishes for the employer of labor in the hazardous occupations.

Defective vision and hearing, caused by neglect, does not have to be paid for in cold cash and hence these defects are the ones most apt to be overlooked. How prevalent these defects are you may know when I tell you there are three million backward school children in the United States who are backward to the extent that they are repeaters in school every year. Only three per cent of these children are really weak minded. Ninety per cent may become normally bright by simple corrective measures applied to the eye or ear.

In order that any measure of conservation may be effective it must be applied to all classes of society; rich, poor, city, and rural populations. The only common grounds upon which all classes of society meet is the school, and they also meet there at a time in their lives when the defects of vision and hearing may be prevented and cured. The method of detection is medical school inspection.

It is obvious that the best type of medical school inspector would be the eye and ear specialist. But in large communities where specialists are available school boards will not adequately pay them for full time. Those specialists who give part time to this work find themselves entangled in petty politics and jealousies which soon put an end to inspection. The next best inspector is the general practitioner who devotes his entire time to the work. He does good work where school boards are willing to pay for his services. He, however, is not available for the country districts. The general practitioner who devotes part time to the work is a decided failure for the reason that his competition puts a stop to his work. Nurses are next best as medical school inspectors, but even nurses are not

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available for rural districts for the reason that school directors are not willing to pay for them. It follows then that a system of school inspection which can be applied to all schools must be available to rural schools, devoid of professional medical competition and free of cost.

Medical inspection by the teacher is the only type of inspection which can at the present time qualify for all schools. Medical inspection by the teacher is the only kind of inspection which is available for rural as well as for city schools. But many physicians, as well as laymen, have their doubts as to the efficiency of inspection by the teacher. Inspection by the teacher has been fostered by the American Medical Association. Through their committee on the "Conservation of Vision and Hearing" they have devised the Allport School Chart with nine questions which are to be answered by the teacher. These questions are:

1. Does the pupil habitually suffer from inflamed lids or eyes?
2. Does the pupil fail to read a majority of the letters in the number twenty line of the Snellen's Test Type with either eye?
3. Do the eyes and head habitually grow weary and painful after study?
4. Does the pupil appear to be "cross-eyed?"
5. Does the pupil complain of earache in either ear?
6. Does matter (pus) or a foul odor proceed from either ear?
7. Does the pupil fail to hear an ordinary voice at twenty feet in a quiet room?
8. Is the pupil frequently subject to colds in the head and discharges from the nose and throat?
9. Is the pupil an habitual mouth breather?

If the affirmative answer is found to any of these questions the pupil should be given a printed card of warning, to be handed to the parent, which should read something like this: "After due consideration it is believed that your child has some eye, ear, nose or throat disease, for which your family physician or some specialist should be at once consulted. It is earnestly requested that this matter be not neglected."

Respectfully,

.....
School.

You will note that the plan is simple. As physicians, you will see the relationship between the answers to these questions and defective vision and hearing. You will perceive that any one can answer the nine ques-

tions. If the teacher follows the method of notifying parents, as recommended by the American Medical Association, it is apparent that she can not boost business for her favorite doctor. Petty jealousies will cease to interfere with medical school inspection. It is plain that this is the only type of inspection which is available for all schools.

Though all schools have medical inspection, you may ask how will that prevent defective vision and hearing. Inspection by itself will not prevent defective vision and hearing, but the educational influence which it produces is the factor which does the work. Most parents want to do right by their children and, in Lincoln where we have school inspection, parents are consulting their physician daily because of some defect which has been called to their attention. Some parents can not afford to pay for medical attention. This is true everywhere. Medical school inspection increases the amount of charity work which physicians have to do. The physicians in Lincoln are doing it and, true to their ethics, they will do it in all communities.

A word of approval from you as physicians will do much toward instituting medical school inspection by the teacher into the schools of our state. It will do much toward introducing the only kind of school inspection which is at the same time both available for the school and acceptable to the people. It will do much toward preventing the curable causes of defective vision and hearing and thereby increase both the mental and physical efficiency of the school child, the man and the nation.

Discussion.

James M. Patton, M. D., Omaha.—The subject so ably presented by Dr. Hayman has been considered of great value not only by the A. M. A., but by a number of other national organizations. It is very evident that if we can put a child in normal condition so far as his organs of perception are concerned, we have at least started him right in the struggle for existence. I think we can all do a lot by our influence in regard to teacher's inspection of pupils. We should support the teacher and not criticize her when she makes a mistake. We, as physicians, naturally oppose a layman's opinion in our field and the teacher, in order to get action, often must make a positive statement and instead of ridiculing her efforts we should observe the same ethics toward her as we would toward a brother physician. We can help in this matter not only by encouraging the teacher but by remembering she is not a specialist. School boards are often uninformed in regard to the importance of inspection and fail to see the value of devoting a day or part of a day to this proposi-

tion. We should take pains to inform these school boards and let the members have the teachers take a certain day for inspection. This should be done at least twice a year. The teacher can usually find out pretty accurately if any of her pupils have defects of sight or hearing, and if so, she can inform the parents so that they can have the trouble corrected.

Another thing that bears directly on this subject is care in the use of prophylactic silver solutions in suspected Neisserian infections. Children have been permanently blinded where the physician has used a silver solution which he thought was 2% but for some reason, possibly evaporation, it was evidently very much stronger. We cannot be too careful in regard to this matter. There is another place where we physicians have responsibility, and that is in insisting on a modern sensible system of school architecture. Boards of education as a rule are more concerned about erecting fine looking buildings than they are about the efficiency of the building itself. We are all familiar with the cottage system of school architecture consisting of one story separate buildings containing one or, at most two rooms. By employing this system the rooms can be much better lighted and ventilated and the pupils can be segregated easily in case of infection and the rooms can be emptied quickly in case of fire.

B. L. Shellhorn, M. D., Peru.—At the State Normal school a plan of inspection has been followed for the last five years that has proved very satisfactory. In the model school the children are taught by senior students under the direct supervision of members of the normal faculty known as critic teachers. These critic teachers have accustomed themselves to the various facial expressions of the near sighted child or the mouth breathing type of adenoid carriers until they are very successful in detecting possible defectives who are then given messages to their parents requesting immediate attention for the child by the family physician.

In epidemics these teachers are also trained to watch for the characteristic symptoms of any epidemic that may be present and on the least suspicion the child is sent home with the instruction to the parent to have him examined. During an epidemic no child is allowed to return to school after an absence, even though it is for only a half day, without a certificate of good health from his physician. This serves to protect the school and puts it up to the physician to bear the responsibility of protecting the community. Such a plan is much more successful in keeping tab on epidemics of diseased children than to close up the school and allow those children whose parents do not employ a physician to continue to spread the contagion through the community.

Dr. Owen spoke of the harm done by ill fitting seats. This question is well solved by the adjustable seat that can be adjusted for the large or small child in the grade. No school should be without them.

Robert McConaughy, M. D., York.—Medical inspection is coming slowly, and to accomplish it, voters will have to be interested. For two years we have had an osteopath and christian scientist on the school board, and a year ago an attempt was made to elect another christian scientist, but it failed. Three of

the six on the school board could do nothing, and had the christian scientist been elected, school inspection would have been blocked. You probably know—at least it is so reported—that the Osteopath Association has sent out notices to its members to get on the school boards and prevent medical inspection. Members are slowly getting into politics for the good of the community.

Puerperal Sepsis.*

I. C. Munger, M. D., Cozad.

In this country approximately 15,000 women between 14 and 44 years of age die annually from diseases incident to child bearing; a greater mortality than from any other disease except tuberculosis. Of these deaths approximately 7,000 are due to puerperal sepsis. When we consider the carelessness of many physicians, the ignorance of midwives, the lack of hospital facilities and the difficulty of providing proper care in the ordinary home it is not surprising that these figures are not even greater. The time has arrived, however, when parturient women should be relieved of the dread of the complication of the puerperium. In fact not only the obstetrician but the profession at large has so far advanced in the technical conduct of obstetrics that every normal case should be privileged to look forward to an uninterrupted puerpera aside, of course, from little disturbances of the bowels, bladder, after pains and lactation.

Through the study of bacteriology has come our present day knowledge of the exact nature of puerperal infection. By puerperal sepsis is meant a pathological condition resulting from the invasion, during labor or puerperium, of various microorganisms and the absorption into the system of various pathogenic bacteria or the toxins of bacteria which are either pathogenic or non-pathogenic. Puerperal sepsis is therefore, nothing more or less than a bacterial infection of a wound either local or general. When the infection remains local we have a condition of septic intoxication (i. e. a toxemia or sapremia) due to absorption into the blood stream of toxins of living or dead pathogenic or non-pathogenic bacteria.

In the generalized infection we find the bacteria themselves circulating in the blood stream, i. e., a bacteraemia setting up local processes in different parts of the body. Therefore I think the simplest and briefest

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definition for puerperal sepsis is, "wound infection of the birth canal."

In order to have a proper understanding of puerperal infection we must know something of the natural bacteriology and the manner of communication to adjacent structures. Of the infecting bacteria (1) the streptococcus is probably the most common and fatal cause of infection; following closely upon this in order of sequence we note, (2) the staphylococcus, (3) colon bacillus, (4) gonococcus and other pathogenic and non-pathogenic bacteria.

If the infection is confined to the uterus the course of the disease is short and prognosis good. However if the infection is virulent it may go through the uterus into the lymph and blood streams before protective barriers can be established. This latter is best explained by Kennedy (*Amer. Journal of Obstetrics and Diseases of Women and Children*, page 801, Nov. 1916), wherein he says: "Puerperal infection being a wound infection it is all the more probable that it should extend as a cellular infiltration." He says further that, "the pathology of puerperal infection becomes most apparent when we realize that it is truly a retroperitoneal one, that it has not the resisting power of the peritoneum to limit and define the area infected." The condition therefore is one of infiltration and the progress of the infection is unrestricted by mucous membrane or peritoneum.

This variety of infection is least under control of the physician and is thus most to be dreaded because of the less satisfactory results in treatment. Assuming that every obstetrical case is a surgical case the woman has the right to expect her accoucheur to employ the same aseptic and antiseptic precautions that she would if her surgeon were performing a laparotomy. At this place it might not be amiss to dwell on some of the more common and frequent sources of infection. However lamentable it may be nevertheless I am convinced that we must head this list with the physician himself—by the physician I mean the fingers of the physician or perhaps nurse in attendance—and especially when the physician has recently attended a case with ulcer or infectious fever with pyogenic complications. The old adage, "long black doctor, long black bag, long black fingers, long black wagon," fits in very well here.

Secondly, sewer gas and bad air may, but rarely do, cause infection.

Another potent source is sexual intercourse during the last few weeks of pregnancy—the male organ is not sterile—and especially when it is the seat of gonorrhoea are we apt to meet trouble.

Lastly, but rarely, the condition may be hematogenous in origin from some distant suppurative process in the human organism.

Obviously then the more effective way to deal with puerperal infection in the large proportion of cases is not to let it happen; in other words prophylaxis. Safety first is the slogan of the day and every physician practicing obstetrics would do well to have this slogan indelibly fixed in his mind. I think I am safe in saying that more than 90% of all cases of puerperal infection are preventable and are due to carelessness. I am impressed with the fact that too many men doing obstetrical practice do not give

sufficient heed to ordinary asepsis and antisepsis in this line of work. They are too careless with their own personal toilet, their own clothes and that of the patient. They do not give sufficient personal attention to the preparation of the patient trusting that to herself or some old woman; neither do they give sufficient attention to hand washing giving as a reason that they use sterile gloves which by the way is not a reason but an excuse and let me say in passing that no more privileges should be taken with the aseptic gloved hand of the accoucheur than with the aseptic gloved hand of the surgeon. It is highly inexpedient that a physician attending any case of an infectious nature, especially erysipelas or other cases of puerperal sepsis should attend a case of confinement, but if it becomes absolutely necessary for him to do so he should resort to most thorough ablution and change every article of dress and give special attention to his asepsis. It should be the duty of every physician to give such advice to his parturient women as will protect them from the possibility of infection through exposure to other patients suffering from infectious or contagious diseases especially during the last two or three weeks of pregnancy. In other words prevent the disease by protecting the patient from exposure, by keeping her in hygienic surroundings before labor, by keeping her in good health and thereby raising her resistance and by conducting the accouchment in an aseptic manner.

Among obstetricians even as among surgeons, assuming our asepsis and technic to be as nearly perfect as possible, we will occasionally meet with an inexplicable post-operative infection. In the practice of obstetrics then as in the practice of surgery it is probably wise to consider every post-partum uterus as potentially infected—just as the surgeon considers every peritoneum opened potential peritonitis until it proves itself otherwise by its clinical course.

We should then, as a consequence, be ever on the alert and endeavor to interpret any abnormal post-partum symptomatology. Symptoms do not appear as a rule until the third day. There may be a rise in temperature during labor without subsequent remission. On the other hand if no symptoms develop within eight or ten days the case may usually be considered safe. I might interpose here that while attending a clinic at the Sloane Maternity Hospital in New York City, last summer Doctor Cragin of that institution stated that to his mind if the patient does not show symptoms of sepsis within one week postpartum the obstetrician may feel sure that he did not infect her. Late symptoms of sepsis are usually due to a flexed or subinvolved uterus with retained lochia or clot.

Any temperature above 101° F. should be

looked upon with suspicion until another cause is found. It may be an old appendix lighted up, it may be pyelitis, it may be distended breasts or it may only be an accumulation in the intestines. Whatever it may be it is our work to determine the cause. An increase in the pulse rate with or without rigor is also an important symptom.

There may be painful joints, either of the acute inflammatory type or not as one of the early symptoms. Again we must suspect the uterus as the supply depot until we are able to rule it out.

The uterus is usually large and the fundus feels boggy; if the uterus remains small and hard prognosis is better.

The uterus post-parum has been sensitive to touch but now we find it acutely so. This is an important guide.

Lochia is generally diminished or suppressed and the milk is decreased in amount. Especially must we rule out infection if this diminution in lochia occurs to any extent inside the first week. The lochia may or may not be foul. Lochia with an odor usually means the toxemic variety and cleaning out the parturient canal will bring down the symptoms. However it must not be forgotten that the colon bacillus causes a bad odor and severe infection. Lochia without odor usually means a general infection from the streptococcus and in these cases there may be no decomposing placenta or blood clot in the uterus which may be empty, save for a grayish necrotic membrane lining its cavity and covering any abrasion on cervix, vagina and vulva. The peritoneum may be involved and the abdomen present all the signs of a general peritonitis. The prognosis in such cases is usually fatal, whether subjected to operation or not. On the other hand the infection may be localized about the uterus and appendages forming a pelvic peritonitis. In this condition recovery may take place either with or without surgical interference.

The amount of pain in puerperal infection is as varied as the lesions presented. Many cases suffer extreme pain especially where there is interference with the functions of bladder and bowels. On the other hand many desperately ill cases approaching a fatal issue apparently are very comfortable.

The curative treatment of puerperal sepsis has for all time been a mooted question. Opinions differ considerably regarding the

details. However the accumulation of years of experience has brought the majority to believe in conservatism. The new abandoned curettage and other surgical interference to rid the parturient canal of its infection has proved many times over that nature's protective barriers were broken down and local infection became general. The patient should be put at absolute rest in bed in a well ventilated room in sanitary cheerful quarters in charge of an intelligent nurse. If lacerated remove the stitches, cleanse the wound and swab this area with either iodine or ether. Make sure that the uterine cavity is empty of all debris. If not possible to remove all with the finger pack with iodoform gauze—remove in twenty-four hours and follow with a douche of hot bichloride (1-5000) or a (1-400) formaldehyde solution followed by hot saline. After the initial uterine douche I do not think it good practice to follow this line of treatment but to trust rather to hot vaginal douches of about four quarts of cherry red iodine solution every four to six hours for the purpose of flushing out the vagina and facilitating absorption of the exudates.

Norman Porritt, (J. A. M. A., June 24, 1916), says that in at least two cases he has seen the uterine douche convert a smart papremia into a rapidly fatal general infection, where in another case it set up acute, presumably chemical peritonitis. While he was administering the douche the woman was seized with agonizing abdominal pains which was quickly followed by collapse and rapidly developing abdominal tenderness and distention and death in five hours. So in using the uterine douche we should keep in mind the patulousness of the fallopian tubes at this time and avoid any undue force to the solution used from the douche bag being held too high. Eighteen inches to two feet should afford sufficient pressure and at the same time the operator should make sure that there is no obstruction to the return flow, such as might be caused by blood clots or fragments of tissue, else even under low pressure the fluid will be forced into the peritoneal cavity through the fallopian tubes.

The condition being one of cellulitis there is little opportunity of relief through surgery so that the treatment resolves itself largely into serum, medicinal, hydrotherapy and hygiene. There is no doubt in my mind that the course of the disease can be shortened

and its severity modified by the early use of serum. Since it is generally conceded that streptococci largely predominate in puerperal infections, I am of the opinion that much can be done toward influencing the course of the disease by the early administration of full doses of anti-streptococcic serum. There will usually follow a modification in the temperature curve and general symptoms of the patient lasting from twenty-four to forty-eight hours when the treatment should be repeated. In so much as it has been demonstrated that sero-therapy is harmless to the kidneys and other vital organs, every severe case of septicemia should be given the possible advantage of serum treatment.

Some advocate the use of intramuscular and intravenous injection of normal salt solution while others condemn it, giving as their reason the danger of producing abscesses but I think this objection far fetched. Personally I use it as a routine—not intramuscularly but as a hypodermoclysis in all severe cases where dehydration begins to manifest itself. And especially where cases are extremely weak, dehydrated and taking food sparingly do I find the intravenous use of a glucose soda bicarbonate solution a wonderful help (250cc saturated solution; 1000cc 2% soda bicarbonate).

When it is thought not best to use this treatment I would at least urge the use of the Murphy Drip (saline solution) at intervals, and the patient should be urged to ingest pure water freely.

Just a word concerning the possibilities of Dakin's Solution in this condition. While I can not speak from experience in the use of this preparation in this particular field, nor do I presume that many can at this time, still Dakin's Solution has so unquestionably proven its worth in the treatment of septic wounds that it seems only logical that it should afford an ideal antiseptic for the uterine and vaginal douche since it is non tissue toxic, and highly antiseptic in its action. Again, too, I have wondered why Dakin's Solution could not be used to advantage intravenously in proper strength, say 1/1,000,000 solution. Am merely mentioning this hoping that it may bring out discussion along this line for if there has been any reports of its experimental use in this field it has not come to my attention.

A brisk cathartic, of course, should be given

at the beginning of the treatment and further laxatives as are required to keep the bowels in good condition. The compound turpentine enema will be very effective in affording relief from intestinal gases. The baby should be removed from the breasts but they should be kept active by the use of pump and massage. Tepid sponging should be employed as needed to hold the temperature within safe bounds. The treatment should also be supportive because we are dealing with a blood dyscrasia which usually extends over a period of considerable time. This should be accomplished by properly selected food, of the highest nutrient value in the most concentrated form, given at four hour intervals and as the disease progresses properly selected stimulative medication.

In conclusion let me urge that we keep the fact in mind in doing obstetrical practice that puerperal sepsis is largely the result of bacteria being introduced from without and is, in just so far as this is true, a preventable disease. I think the old adage, "An ounce of prevention is worth a pound of cure," can well be applied here.

Discussion.

C. L. Mullins, M. D., Broken Bow.—In my personal experience I often find in these cases of sepsis that there is often a tendency to do too much. This is not as noticeable in the younger physicians. In a case of obstetrics I proceed as in a surgical case, boiling and otherwise sterilizing everything that is to come in contact with the genital tract, including a thorough scrubbing of the introitus with a lysol solution. Many of these cases of sepsis are doubtless due not to the neglect of the physician to get his hands clean but to the fact that he introduces a clean finger through an unclean introitus. In a quarter of a century and over I have happily seen puerperal sepsis diminish and it will continue to diminish as aseptic methods are better understood and applied at the bedside.

C. P. Fall, M. D., Beatrice.—I want to add to the doctor's "long black list" the long black obstetrical bag. To look into the average obstetrical bag would rouse considerable suspicion about the origin of a good deal of sepsis in our obstetrical work. Long since after attending a case I have every article in my obstetrical bag taken out, sterilized and wrapped in wax paper; even the bottles are treated with antiseptic solution, and it is my habit to go prepared to attend an obstetrical case as aseptically and cleanly as if I intend to do a laparotomy. Now, the duty of the physician to the patient should begin as early as possible after pregnancy exists. He should see to it in the light of our present understanding that all focal infections of the woman is removed as far as possible and kept in as good condition as possible until the child is born. That means the condition of the teeth, the tonsils, intestinal stases and other

hygienic measures. Many puerperal infections are auto infections and not the fault of the physician at all. After the baby is born, the parturient canal should be inspected to see if there are abrasions or lacerations, and if so they should be closed up because they become puerperal ulcers, and we know that infection is always present in the parturient canal and absorption of infection takes place very readily from these open wounds. DeLee says that every prime primipara a reasonable amount of injury and a large percentage of multipara sustain injuries that need attention. I notice that the doctor recommends that the baby be taken from the breast. Infections in the woman during gestation as well as in the puerperal state alters the quality of the milk as well as the quantity; carrying bacteria and toxins from the mother over into the milk; the fat is the element most affected, being lessened in quantity.

For the best interests of the baby I never remove it from the breast if possible. While mothers' milk may be giving infections and toxins, it is also giving to the baby the natural antitoxine that artificial feeding does not give.

In the last year it has been my practice where the quantity of milk is affected and sometimes where the quality of it is changed I draw from one to four cubic centimeters of milk from the mothers' breast as aseptic as possible and immediately give it hypodermically to the mother. The next day the breasts fill, the fat increases and the baby seems to do well. Of course these hypodermics will have to be repeated from time to time until all infections from whatever source they may be are removed from the mother, and these sources of infections are not necessarily from puerperal origin.

Arthur L. Smith, M. D., Lincoln.—I want to commend the doctor upon his most excellent paper. In my opinion the physician who is in a hurry has no right to do obstetrics. This is one thing that cannot be rushed. I cannot agree with the doctor's statement as to exploring the uterus and treating this part in puerperal septicemia. I believe this organ should not be disturbed in this condition. Babies should never be taken from the breast until the mother is very weak or the infecting organism is being excreted in the milk. In the latter condition the breasts would be pumped regularly and when the organisms disappear the babe can again take the mother's milk. As far as I am concerned I do not care to take a confinement case that I have not followed from the third month. We must impress upon our patients that their health is dependent far more upon the doctor's care before than after confinement.

H. H. Waite, M. D., Lincoln.—It is sometimes profitable to revert to medical history. Such a reversion has a particular application to the discussion of puerperal sepsis. You will recall that sometime early in the forties Oliver Wendell Holmes, noting the large number of cases of puerperal sepsis occurring in New England, made an exhaustive study of this subject. This study was founded upon observation and the logical supposition that puerperal sepsis was transmitted from one case of this infection to the next woman who had it. As a result of his observations Dr. Holmes came to the conclusion that

puerperal sepsis was transmitted from woman to woman through the physician who attended her. The paper which Oliver Wendell Holmes wrote after making this exhaustive study is today one of our classics in medical literature and any one who has not read this contribution on puerperal sepsis ought to do so. Shortly after this, as you will probably recall, Semmelweis, in Vienna, called attention to the horrible mortality that was occurring in the maternity department of the General Hospital of Vienna. He noticed that the greater part of the deaths were in the ward attended by medical students coming directly from the post mortem room. In another ward the parturient women were attended solely by midwives. As a result of this observation, though he had no knowledge of bacteria, he required that no student should come in contact with any lying-in woman who had not first washed his hands and subsequently immersed them in chlorine water. In 1846 the deaths from sepsis in this maternity hospital were 11.4%. In 1847 this regulation went into effect and the death rate was reduced to 5%. In 1848 the death rate had been reduced from 11.4% to 1.27% by simply having this requirement of washing the hands and immersing them in chlorine water carried out. I think it was the simple mechanical cleanliness which brought about this result and that the all-important thing in puerperal sepsis is cleanliness. I am convinced that too much manipulation is responsible for not a small number of these cases of puerperal sepsis. We do not have such a large number of infections as we formerly had. Those we do have are largely due to the material which is carried on the hands of the man who is in charge of the patient.

I would like to emphasize just one more thing. Very rarely does an efficient surgeon carry infection from a pus case to someone on whom he afterwards operates and there is no reason why a physician should carry infection from a case of scarlet fever to some parturient woman whom he is attending.

Daisy M. Hanson, M. D., Lincoln.—I am afraid that Dr. Munger has said everything good on this subject, and left me nothing at all to say. Of course the important part of this question is the prevention of puerperal sepsis. And it seems to me one of the things we are doing here in Lincoln—supposedly to prevent sepsis—is just exactly the wrong thing. They tell us that over 16% of the births in Lincoln are attended by midwives. So the city health department has started a series of fifteen talks to these women. After attending them each midwife is given a certificate, and is registered at the health office. This seems to give the city's guarantee that they are safe and proper persons to attend obstetric cases. Most of these women can neither read nor write in their own language, have no previous training whatever, and it seems to me absolutely impossible that anybody, man or woman, can be so brilliant that he can master the intricate and dangerous art of obstetrics in fifteen rather haphazard lectures.

Anybody who has practised obstetrics long knows how quickly the most terrible dangers—hemorrhage, convulsions, prolapsed cord—can put in an appearance. There is no time to call across town for more skilled help. What is done must be done at once. And often the lives of both mother and child depend on the attendant's soundness of judgment and

promptness in action. Probably we have all wished fervently and often that we had a hundred times our poor ability and training, to help us meet such emergencies. And probably we have all been called to help with the different midwives' breech cases, always to find a dead baby by the time we could reach the house. Also to treat their cases of sepsis a few days after the labor. Nobody would think of trusting a nurse in the operating room, even under the surgeon's watchful eye, if her whole training in sepsis consisted in a course of fifteen lectures. Yet the midwife attempts work a thousand times harder, entirely on her own responsibility. These women are not legally entitled to do this work, and when we give them the little smattering of knowledge which is "a dangerous thing," and seem to give them the seal of the city's approval, I think we encourage more women to put up with very poor care during labor.

Of course the midwives are not the only ones who do poor work and have cases of sepsis. The mothers and babies always seem doomed to be turned over to the youngest tyros in medicine. The obstetrician's hours are so long and irregular, interfere with other work so disastrously, and bring in such poor pay, that most doctors with a really good paying practice refuse such cases entirely. They are turned over to the youngest graduates in town, to help them get a start. These young doctors are sometimes well trained, and have had lots of hospital and clinical experience in such work under expert teachers. Often this is not the case, and the child-bearing women of the country are forced to support and give clinical experience to an endless procession of unskilled beginners.

The general practitioners who are treating contagious cases and the surgeons who are dressing pus cases may easily carry infection to their obstetric cases also. This would not happen if the doctor's asepsis were perfect, but probably we all know cases where sepsis was caused in just this way. Why can't we doctors cooperate better? We have learned to turn over the surgery, the X-ray work, the complicated laboratory tests, and the eye, ear, nose and throat cases to their respective specialists. Why can't we, in the larger towns at least, turn over the obstetric cases to a few well trained specialists too?

In a recent pamphlet, Dr. Grace Meigs of the Children's Bureau states that statistics from the registration area of the U. S. show no fewer deaths from puerperal sepsis now than two generations ago. This condition certainly demands reform. Good obstetricians are of much more importance to our country than good surgeons. In the first place, the mothers and babies far outnumber the surgical patients. And in the second, the obstetrical case generally concerns the lives of two young, strong citizens, of great potential value to the state. While in a large proportion of the surgical cases—the cancers, fibroids, and hypertrophied prostates—the patients are already past their period of greatest usefulness.

This is an era of health conservation. We are legislating to save the babies' eyes, building public hospitals to cure the tubercular, providing medical inspection for school children, insisting that mines, factories, etc., be as free as possible from accident

and health hazards, and passing workingmen's health insurance laws. Why doesn't our country protect so valuable a class of citizens as her child-bearing women, by providing them expert care at delivery, even if it must be at the country's expense?

Deficiencies in the Young.*

Joseph M. Aikin, M. D., Omaha.

Three quarters of a century ago Seguin aroused medical men to a critical study of why one or more children in a family are defective mentally or physically, when their parents, brothers and sisters are quite normal. The teachings of Seguin were remarkable for their simplicity. His dictum was, education of the senses must precede education of the mind. His disciples and successors, in studying this phase of human imperfections, named their types, assigned their probable cause, and planned their most rational treatment, for our application. The diminished, perverted or lost function—mental or physical—seen by our predecessors was considered as due to abnormal structural relations in the tissues responsible for physiologic actions.

The words idiot, imbecile, and feeble-minded, are terms expressing degrees of departure from the normal status of family tree in which the child, youth or adult in question, is a branch. The young and ambitious workers in pediatrics and pedagogic methods, often coin new names and classify more exactly than physicians of large experience in the study of mental deficiencies. Their conclusions sometimes fail to illuminate our understanding or satisfy our conscience, regarding the etiology, diagnosis, treatment and prognosis, of the class in question.

Although Seguin of France is entitled to priority for initiating an intelligent study into the cause of mentally deficient children, it is a fact that in Italy, Switzerland, Germany, Scandinavia, England, Wales and Scotland, able men were simultaneously advancing that department of medicine. In Germany the clinical picture of degeneracy as a congenital, or as an acquired asset in the personnel of the individual, has been critically analyzed and grouped by Krapeling, but it is doubtful if his substitution of *dementia praecox*, for the term primary dementia, coined twenty years prior by Clouston, or by re-coining the discarded term *paranoia*, for the

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simpler monomania, has clarified our understanding of the cause, or enlightened our ability to benefit this class of deficient.

In America our Doctors Howe, Wilbur, Goddard and a host of others, astute observers and teachers have added largely to the sum of our knowledge in classifying and caring for these dependents on society. We lament the death of Dr. F. M. Powell, who so ably advanced the work of caring for deficient children in the Glenwood, Iowa, school for feeble-minded, and today earnestly seek and appreciate the opinion of our own Dr. H. M. McClanahan. The best men in the profession everywhere, iterate and reiterate the necessity for a thorough anamnesis in each case, a correlating of the facts, and a correct estimate of environment in which the child must grow up, before giving a diagnosis and prognosis. The historic resume of these subnormal members of society justifies the establishment of special institutional housing of them, under competent medical and pedagogic care.

Pathology and Etiology.

What destruction exists in the tissues when abnormal symptoms appear, just where are these organic changes, and what initiated them, is the problem confronting us, and to which we must, when called upon, make answer. The varying clinical pictures we see educate our ability in classifying as idiot, imbecile, or feeble-minded, but do not reveal the pathology of which they are the fruits. We recognize in mental deficiency two main divisions of cerebral malformation, the genetic and acquired, also called primary and secondary. Dr. Tredgold estimates that about 90% of all mentally defective children belong in the genetic group. Our observation fully sustains that opinion. Discovery of sufficient cause projected by the parents may be wholly negative, but evidence in one or both grandparents may reveal the potential latent in the first, but seen dynamic in the second or third generation. The element of time needed for the degenerative action of toxic substances to fully evidence their effects, varies within wide limits. We know consanguineous marriages tend to direct heredity, whether strong or weak. In the mating of opposites the possibility of the healthier parent giving genetic strength to one or more than one, but not to all of their children, is an accepted fact. So sure are we that the child of syphilitic

parentage is doomed to an early death, or an abnormally developed life, that intelligent laymen of robust health—but carriers of specific infection—dread the privileges of parenthood lest their progeny will be defective. This common knowledge about the effects of inherited syphilis on the first generation, finds a parallel in the grand, or great-grandchild of the so-called moderate user of alcoholics. The time for fruitage from poisons of endogenous or exogenous origin varies greatly. These are not the exclusive causes for congenitally defective children. The exigencies of poverty and insanitary living by the pregnant woman, may deprive her child of inherited good health. This at least suggests the wisdom we should exercise in weighing the evidence, past, present and probable, for any mentally deficient child whose ailment we diagnose, treat and prognosticate.

Dr. Tredgold, in studying a large number of cases in London, obtained full particulars for three, and sometimes four generations. In these he found a neuropathic tendency in 82.5%. His statistics have been amply confirmed in America by Dr. Goddard in the Training School at Vineland, New Jersey. In his study of 300 families Dr. Goddard concludes that "feeble-mindedness is hereditary, and transmitted as surely as any other character." He gives it as his opinion that, excluding Mongolianism, mental defect is a Mendelian recessive character. That simply relates the fact that not every person who carries the taint show any sign; it only becomes evident in certain families where both parents have a mentally defective heredity. I quote from Shuttleworth & Potts four corollaries they deducted from Goddard's studies on the why and the how of mental deficiencies, that give valuable suggestions for obtaining and evaluating evidence.

1st. If two normal parents, both of whose families are free from mental defect, have children, all those children will be normal; and, in addition, the children will be incapable of transmitting mental defect to their offspring.

2nd. If a normal person whose family is quite free marries either a mentally defective person or one who, though normal, is a carrier of the defect, then, although all the children will be normal, a certain number will be carriers of the taint. If the second parent is actually defective, half the children will carry it; but if the second parent merely carries it, without showing it, only one in every four of the children will carry the defects in its germ-cells.

3rd. If both parents are apparently normal, and yet both carry the taint, then one in every four of

their children will be defective, and in addition, two out of every three of the normal children will carry the defect, while one only will be entirely free.

4th. If both parents are defective, every one of the children will be defective.

In human families, which are limited in size, the numbers of those who are defective and those who are not, seldom corresponds exactly with the table just given; the results of Mendelian inheritance can only be exact when the families are large, as happens in the vegetable kingdom. Yet many of Dr. Goddard's records approximate closely to the conditions of a Mendelian recessive.

The recessive character of the Mendelian theory is based on the study of large families over a period of three or more generations. It explains the objection to marriages between cousins, the danger being that if one parent carries mental defect in his germ-cells, the other parent will very likely do so too; the results of such a union are sometimes disastrous. The Mendelian theory enables us to answer why a parent may have only normal children after one marriage and defective children after a second marriage. That observation we frequently verify. Our adherence to the doctrine of heredity is of major importance in determining the personal equation of the individual. We do not ignore the influence of environment, but look upon it as a sort of control inhibiting abnormal germinal tendencies. Our institutional care of mental deficient, under trained medical and pedagogic surveillance is the fruit of that principle. We know that syphilis in parents often causes miscarriage and abortion, and justly conclude that a poison sufficiently toxic to kill the embryo either before or shortly after birth, must have a devitalizing effect on the offspring that survives. The progeny of tuberculous or alcoholic parents are the logical clientele for our out-door clinics, and a passport to our institutions for dependents. Premature birth is a result, rather than a cause of mental deficiency. Prolonged parturition is a more potent and frequent cause of traumatism to the brain, than the brief compression of an instrumental delivery. The child that has "spasms" in infancy, is progressing toward "spells" in childhood, and "fits" in youth or adolescence. The bacillus epilepticus is an illusion, the functions of the ductless glands are not understood, and the fundamental cause of epilepsy has not been discovered. Epilepsy is a syndrome that spells mental deterioration in

about 90% of its victims. The period of second dentition is the age at which the greater per cent of mental deficiency cases come into full bloom. It is well to remember that migraine—the twin of epilepsy—usually makes its advent into the experience of its host, concurrent with the appearance of their permanent teeth.

When the brain is diseased or injured during foetal life, during birth, or during infancy, and fails to develop in a normal manner, the mal-development may be general or local. Our evidence is the clinical picture presented. We learn to group mental symptoms already referred to as idiot, imbecile and feeble-minded, representing degrees of defective intelligence. By analogous reasoning the symptoms representing abnormal motor or sensory function may be arranged. Any type of paralysis, hemiplegia, monoplegia, diplegia or quadraplegia with spasticity, form one group.

A second group is characterized by mental defects ranging from idiocy to feeble-mindedness, in which the powers of attention, reasoning and self control are lost, or only certain peculiarities of conduct are the obvious sign posts. Epilepsy is usually present in this group.

A third group presents both partial or total blindness or hearing, therefore mutism. Imbecility and epilepsy may develop in this group.

Our method of dealing with mental deficiencies in children must of necessity be along the lines of special care for existing cases, and education to lessen the increase of preventable cases.

The Early Diagnosis of Breast Cancer.*

Chester H. Waters, M. D., Omaha.

In our strife with the cancer problem the most promising objective at present is earlier diagnosis. This is particularly and most emphatically true of cancer of the breast. In cancer elsewhere, particularly of the viscera, diagnosis is often obscure, is necessarily made late and an unfavorable prognosis is made worse by the technical difficulties of operative removal. Neither factor obtains in cancer of the breast—diagnosis can be made early and surgical treatment is relatively simple and encouragingly effective.

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Early diagnosis is possible only when early consultation makes it so, and this in turn depends on individual and public co-operation. This co-operation is attainable only through popular education. Education is undeniably the crux of the cancer situation today. In this direction the Society for the Prevention and Control of Cancer is performing noteworthy service in arousing a serious and wholesome interest in this vital problem. It bears a message of hope to thousands annually doomed.

Jackson does not exaggerate when he emphatically states that one-half of the women dying from cancer of the breast do so needlessly. Statistical reports from various sources give the average of cures from 25 to 40 percent. Johns Hopkins Hospital claims 42.4 percent. At this clinic, those cases operated upon before axillary glands are demonstrably involved show 85 percent cured. Crile reports but 14 percent of cures where glandular involvement exists and 80 percent where glands are not invaded. Accordingly the opportunity for cure is twice as great with early operation, made possible by early diagnosis.

Twenty-five percent of the breast cancers reach the Mayo clinic in an inoperable stage! Why? Because we as a profession are not fully aware of the danger lurking in every lump in the breast and "wait and see what happens" advice proves to be nothing short of criminal procrastination. Nor is this our only shortcoming for as a society we certainly are remiss in a public duty—that of education, of instilling a wholesome fear of cancer in every heart.

Medieval Medicine presented us with an heirloom called "classical signs" and many of us are still enslaved to this fetish. Retraction of the nipple, ulceration and pain are, indeed, signs and symptoms of cancer of the breast, but of the same significance as the death rattle. Rodman truly states that "nearly all physicians depend upon two signs in cancer which frequently even in advanced cases are not present at all. One is pain and the other is retraction of the nipple. Pain is almost invariably absent for the first year or more of cancer of the breast. I do not know of any condition about the breast as painless as cancer. Benign growths, cysts and involution mastitis, all give more or less pain. Cancer gives none. Retraction of the nipple at the very most occurs in 51 percent of all cases." May we express the hope that

so-called "classical" breast cancer becomes mythical, at most a rare curiosity, a relic of a less enlightened age. What, then are to be regarded as thoroughly modern evidences of cancer?

First—A "lump" in the breast is the primary evidence of cancer in 95 percent of cases. In 5 percent only is pain an associated or preceding factor. According to Mayo statistics 80 percent of all breast tumors are primarily malignant, 20 percent primarily benign, but half of these latter become malignant, so that of all breast tumors 90 percent are ultimately malignant. Heredity, trauma and even lactation and its complications have no tangible bearing on breast cancer and feature only incidentally.

Age undoubtedly is a factor but is becoming less so as the cases of adolescent breast cancer accumulate. According to Crile 48 is the average age of individuals presenting breast cancer. Breast tumors are usually benign in persons under 30, but the probability of malignancy increases in leaps and bounds with each succeeding year.

Second—The examination of the breast.

Even in very early cases there is usually some change in contour or symmetry of the affected breast. The nipple may be elevated, apparently more prominent, and the entire breast may appear smaller and less pendulous because of some degree of fixation due to fascial involvement. Pitting of the skin, the so-called "orange peel" or "pig skin," is one of the earliest signs of malignancy, and is usually visible. If not it can be brought out by drawing the skin taut over the breast with the flat of the hand while pushing the lump in the opposite direction. This condition is produced by the early invasion of the subcutaneous connective tissue trabeculae. It does not occur in benign tumor. Palpation will verify inspection with regard to mobility of the breast, the faintest perceptible "tug" being of utmost significance. Small tumors are often scarcely distinguishable from normal gland parenchyma and are usually perceptible only when the breast is examined with the flat of the hand. Small tumors, too, often give an erroneous impression of being circumscribed. The majority or 49 percent of breast tumors, both benign and malignant, are found in the upper outer quadrant, so that the location of the tumors is of little aid in determining malignancy. The degree of hardness is variable and difficult to determine

especially in small tumors, but in general the malignant tumor is more firm than the benign. The malignant mass is rarely tender, and it is exceedingly exceptional to have multiple tumors in the same breast in malignancy.

The presence or absence of enlarged axillary or pectoral glands is of no consequence as an aid in early diagnosis, but is of vital prognostic importance.

When all has been said and done there will be many doubtful or border line cases where the diagnosis is not cleared up until the tumor is submitted to the pathologist. That every growth in the breast is malignant until proved otherwise, is a justifiable attitude. A rational procedure in every questionable breast tumor is its early operative removal, the diagnosis made at once by frozen section and the operation completed in such manner as indicated by the pathologist's report.

In diagnosis cancer is to be differentiated from:

1. Sarcoma, which is usually of more rapid growth, softer, with increased vascularity and the absence, even in advanced cases, of glandular involvement.

2. From abnormal involution by the fact that this condition is usually bilateral, and fascial, and skin attachment does not occur.

3. From fibro-adenomatous tumors in that these tumors are often multiple, are freely movable and definitely encapsulated.

4. From tuberculosis by the fact that this condition is of much more rapid growth than carcinoma and by its marked tendency to early ulceration and sinus formation.

5. From syphilitic infection often with difficulty. Chief reliance should be put upon the history and Wassermann test.

6. From localized chronic pyogenic infection largely by history and a varying degree of tenderness and glandular involvement.

Let us summarize briefly:

1. Every tumor of the breast is cancer or potentially so.

2. Popular education in regard to cancer is of vital importance and the only way we can hope to make progress in its control.

3. Age is not a determining factor in malignancy and the highest percentage of errors in diagnosis of breast tumors occurs in younger individuals.

4. The profession at large does not fully realize the danger of delay and the limitation of surgery as shown by the fact that 25 percent of cases are inoperable when surgical aid is sought.

5. Retraction of the nipple, pain and ulceration are not signs of early cancer. To wait for such symptoms to become manifest converts an operative case with at least 80 percent chance of cure into an inoperable one with its inevitable result.

6. Pitting of skin over tumor regardless of its size together with restricted mobility are the earliest signs of malignancy.

5. There is no excuse for delay. Every breast tumor should be removed as soon as possible after discovery. Whether simple resection of the tumor, removal of the entire breast or the complete radical operation should be done will be indicated in each case by the diagnosis of the nature of the tumor attained by carefully weighing the clinical data, the gross appearance revealed at operation and the revelations of the microscopic examination.

References.

- Handley, Surg. Gyn. & Obst. Vol. XX, 72.
 Rodman, Journ. Am. Med. Assoc. Vol. LXIV, 707.
 Halstead, Journ. Am. Med. Assoc. Vol. LXIV, 1653.
 Jackson, Am. Journ. Surgery, Vol. XXIV, 265.
 Frank, Am. Journ. Surgery, Vol. XXIV, 244.
 Deaver and MacFarland, "The Breast," Blakiston Pub. 1917.

LUDWIG'S ANGINA.*

• E. R. Hirsch, M. D., Superior.

This seldom discussed condition is, in my opinion, a most important one, as is any condition carrying a 40-50% average mortality, and more especially where this mortality can be reduced to a figure certainly under 10% by early recognition and prompt institution of proper treatment. Again it is worthy of consideration from the mere fact that text-books skip lightly over the subject, almost none giving a sufficiently clear or comprehensive picture of the condition which would enable me without further knowledge of the subject to reorganize even a remote kinship to the actual condition and that described in them. And one even (Spencer & Gask, London) goes so far astray as to call it a Streptococcus pharyngitis.

The condition was first described by Ludwig in 1836 as a sub-mental infection. Then originated a wide controversy as to whether this was a distinct condition or merely a phase of cellulitis or phlegmon of the neck. In 1892 Delorme in a comprehensive article on the subject puts forth his views that it is a distinct condition—a sublingual phleg-

*Read before Nebraska State Medical Association, Lincoln, May, 1917.

mon. To me it seems a fruitless argument, provided we bear in mind the different sequelae resulting from a phlegmon in this locality and one elsewhere in the neck, and that these differences are due solely to the difference in anatomy and the different anatomical relations.

The condition is a phlegmonous inflammation, beginning in the submaxillary lymphatics, extending rapidly to the floor of the mouth, accompanied by the usual signs of septic infection and leading rapidly to serious and often fatal complications.

It usually arises from some focus within the mouth apparently insignificant. From decayed or abscessed teeth, infections in the lip, gums, ulcerations in the mouth, infected tonsils, necrosis of the mandible, and then from general septic diseases, as erysipelas and scarlet-fever. In these latter conditions it is usually the submaxillary salivary gland which is first involved. Another cause, as occurred in one of my cases, is slight injuries or abrasions of the mucous membrane of the mouth from foreign bodies producing a focus of lessened resistance allowing the ever-present organisms to get in their work.

From some focus as above delineated, the lymphatics, usually within the capsule of the submaxillary salivary gland, become infected; a virulent infection from a minor focus. Either the infection remains within the capsule, or it soon spreads without, giving us a periadenitis and rapidly spreading cellulitis. In the former case owing to the denseness of the capsule the products of the inflammation are under great tension, giving intense pain, and if not soon relieved resulting in abscess formation or a rapidly spreading and rapidly fatal gangrene. In the latter and more frequent cases the infection soon travels outside of the capsule, giving us a wider area of infection. The course this infection takes in its extension is in the cellular tissues between the mucous membrane of the floor of the mouth and the mylo-hyoid muscle. The submaxillary salivary gland is also involved, as is often the sublingual. The infection travels to the floor of the mouth causing great swelling of the tongue and sublingual tissues. This swelling has now occurred in all contiguous parts and the whole swollen mass is surrounded in front and on both sides by the inelastic mandible; therefore any further extension must be backward and downward toward the larynx, a distance

of only about 5 cm., from the point at which the infection reached the mouth. Here edema of the glottis with interference with respiration produces a fatal termination. Paulsen, however, after much study believes that the pharynx and larynx are affected directly through the lymphatics without a spreading of the original infection itself. In a report of twenty-five autopsies the larynx of sixteen was examined, fourteen of them showing edema of the glottis and larynx.

Almost any of the pyogenic organisms may be the cause. The most frequent is the streptococcus, altho staphylococcus, colon bacillus, micrococcus tetragenus, and a host of others have been the offending organisms in the reported cases.

There is usually a history or the evidence of some old infectious focus, or some slight injury in the mouth, following this there is a slight swelling in the submaxillary region, somewhat tender to pressure. This rapidly increases in size, has a peculiar extremely hard feel. The patient now complains of pain on opening the mouth, due to the tender swelling under the maxilla. The skin of the region takes on a brawny edematous appearance. There is however seldom any redness owing to the depth of the infection. Chills and temperature now put in their appearance and the leucocyte count goes up. Then as the infection spreads to the floor of the mouth we find great swelling here and in the tongue. This rapidly increases until the tongue more than fills the whole oral cavity. The mouth now stands open, the tongue protruding therefrom, there is difficulty in talking and swallowing, increasing rapidly until there is absolute inability to do either. The saliva dribbles from the mouth, the breathing becomes more difficult and if allowed to go on finally edema of the glottis and death occur. Parenthetically let me remark that edema of the glottis and death may occur without any previous dyspnoea. This lends support to the contention of Paulsen referred to before. When however the infection remains limited within the gland capsule, the symptoms are longer delayed, the pain is, however, more severe owing to the tension which is greater, due to the severity or virulence of the infection, causing an excessive amount of exudate in a limited space. The tension increasing, necrosis and suppuration occur, fin-

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The Pains of Gastric Ulcer.

The nature and the cause of painful sensations arising from the abdominal viscera in pathological conditions, have been the topic of much speculation and conjecture by clinicians. The uncertainty thus displayed has its counterpart in the uncertain knowledge concerning the normal sensations which have their source in the viscera. These are of so low a grade that they only rarely cross the threshold of consciousness. This does occur in those individuals who normally experience hunger pains, and following popular belief, in ordinary cases of abdominal "cramps."

The low grade of sensibility of the intestinal tract finds confirmation in the experiences of surgeons who have manipulated the intestines of conscious patients without arousing any feeling. Handling does not constitute an adequate stimulus. The receptors situated there seem to be stimulated best by contractions of the musculature, and, when the latter involve areas of inflammation the result may be an intense pain. It is conceivable, however, that there may be other causes, or, at least, other factors in the production of pain, as, for instance, in gastric ulcer, where the hydrochloric acid may act upon nerve filaments exposed by the eroding ulcer.

The view which regards the pains of gas-

tric ulcer as due to stimulation by hydrochloric acid, prominently advocated by Moynihan, has been adopted by many clinicians. In support of this view the administration of alkali, as is well known, gives relief. But the inference that the relief is due to a neutralization of the acid, may be erroneous since Hertz has shown that the giving of strong acid by mouth to ulcer patients does not cause nor increase the pains.

Patients with ulcer or hypersecretion describe their pains as partly continuous and in part periodic or "gnawing." The rhythmical character of the pains has been attributed to the concomitant rhythmical contractions causing hunger pains. Glassner and Kreuzfuchs state that in gastric ulcer there is a prolonged tetanic closure of the pylorus when the acid gastric juice first enters the duodenum. A similar pyloric spasm comes on later in digestion in cases of duodenal ulcer. Recent studies, moreover, have indicated that alkalis may cause relaxation of the tetanic spasm of the pylorus and antrum, induced reflexly from the duodenum and may thus point to a different *modus operandi* in diminishing pain. It is reported that Carlson has quite recently succeeded in obtaining evidence of the coincidence of gastric ulcer pains with the typical hunger contractions of a normal stomach at a time when the acidity of the stomach is less than that present in the same stomach previous to the onset of the gastric pains. This corroborates the findings of Hardt that hypersecretion and hyperacidity are not constant factors in ulcers and conforms to the fact that the gastric pains in gall stones, appendicitis or gastroptosis, where there is no raw surface to be attacked by the acid, either in the stomach or in the duodenum, may closely simulate the gastric pains of ulcer.

Tethelin.

A unique agreement, possibly of far-reaching importance was executed on September 7, between Dr. T. Brailsford Robertson, professor of biochemistry and pharmacology, and the regents of the University of California. Dr. Robertson is the discoverer of a substance, "Tethelin," isolated from the anterior lobe of the pituitary body which gives promise of being of great therapeutic value in stimulating growth and repair of slowly-healing wounds.

The ownership of this preparation, patents and trade-name are, by the terms of the agreement, conveyed to the regents of the university to be used in such a way as will best produce monetary return therefrom and at the same time render the preparation most generally available for the benefit of the human race. The proceeds, after certain reservations, are to be devoted to the furtherance of medical research.

University Hospital Dedication.

Marking a new epoch in the development of medical institutions in Nebraska the new \$250,000 state hospital for indigent poor, located on the campus of the University of Nebraska College of Medicine, Omaha, was formally dedicated October 17th.

Chancellor S. Avery of the University of Nebraska gave the dedicatory address in which he stated that the hospital has a dual purpose. It will not only serve the state by building up a stronger and better medical college, but also by operating as a humanitarian agency where the worthy poor may receive free medical attention at the expense of the state. War demands that medical education go on without interruption. We must have immediately on the battle field and back of the firing line well trained men to care for the injured, to establish sanitary conditions and to prevent the outbreak of pestilence. The new hospital will do its part toward conserving the man power of the United States by training physicians to restore wounded soldiers to health.

Dr. Fred Hoffmeister of Imperial who introduced the hospital bill in the legislature of 1915 and who was largely instrumental in securing the passage of the measure by the narrow margin of a single vote presented the structure to the state.

Speeches of acceptance on behalf of the University, the Nebraska State Medical Association and the public were made respectively by Hon. Frank L. Haller, president of the Board of Regents, Omaha; Dr. C. L. Mullins of Broken Bow and W. H. Clemons of Fremont. Dean Irving S. Cutter presided at the dedicatory ceremonies. Inspection of the new building followed the ceremonies. The dedication was largely attended by physicians from various localities and representatives of state activities.

Rapid Growth of the Birth Registration Area.

Washington, D. C., Sept. 12, 1917.—Congratulations to Maryland, Virginia and Kentucky, the latest states to be admitted to the Registration Area for Births by the Director of the Census, Sam L. Rogers.

The Registration Area for Births was established in 1915 and was then composed of ten states and the District of Columbia, representing 10 per cent of the territorial extent of the United States but containing 31 per cent of the country's population. For this area the Bureau of the Census has recently issued its first annual report, entitled "Birth Statistics." As the area grows the annual reports will deal with the births in a constantly increasing portion of the country and will, therefore, become of constantly increasing interest and value.

The outlook for a very rapid growth of this Registration Area for Births is so good that a word of cheer to the states outside should be given. The need of complete birth registration is recognized now as never before. The age of the soldier must be known, and so a new argument for birth registration comes to the United States. Since war was declared tests of the completeness of birth registration have been made by special agents of the Census Bureau in Virginia and Kentucky, and both these states secured a rating of over 90 per cent, which represents the degree of completeness required for admission to the area.

Similar tests are now being made in Indiana and New Jersey, and before the year is over will be conducted in North Carolina, Ohio, Utah, and Wisconsin. Several other states are nearly ready to seek admission, and it is by no means a wild prediction that the Birth Registration Area within the next two years will be more than trebled in size and will contain over two-thirds of the population of the United States.

One physician recently became so thoroughly aroused to the desirability of recording births that he reported to the local registrar 450 births which had occurred in his practice since 1900.

Parents and physicians everywhere are awakening to the importance of this matter and the fashion now is to register baby's birth.

The Sign of Life.

There are times when it is desirable, for practical or theoretical reasons, to determine positively whether any given piece of matter is alive or not. This is a task of considerable magnitude and it involves the question as to what are the criteria of life. What are the fundamental properties of living matter which, singly or combined, distinguish it from dead matter with certainty? Irritability, it has been said, is the universal sign of life by means of which living matter adjusts itself to its environment. But the term irritability is an abstraction for the objective sign of irritability in living matter is its

functional expression, as when a nerve conducts an impulse, or a muscle contracts or a gland cell secretes. It is implied, too, that in this functional expression there is an exhibition of energy exceeding that of the stimulus which aroused the material into action. Even though we lay no stress upon the energy relationships between stimulus and response, a little experience will reveal the practical difficulty of distinguishing in particular cases between a genuine functional response and an illusory response. Just because an object moves is no sign that it is living; non-living bodies conduct in exact imitation of the passage of nerve impulses in nerve fibers; artificial amoebae have been devised which will ingest suitable food-stuffs, adding them to their own substance very much as an actual amoeba would engulf a diatom; reproduction occurs commonly in inorganic matter; the psychic phenomena of higher animals cannot be demonstrated in microorganisms; organization is a wide spread phenomenon, occurring in the non-living as well as in the living.

It has long been known that the living state is conditioned, in most cases, by underlying chemical processes leading to the production of carbon dioxide as an end product. The behavior of nerve fibers—giving no evidence of fatiguability, no evidence of the liberation of heat and no demonstrable elaboration of carbon dioxide stood for a long while opposing the generalization that living processes are always based on chemical changes. Recently a new instrument has been devised, known as the biometer, which is capable of detecting one-tenmillionth of a gram of carbon dioxide. This is the amount contained in one-sixth of a cubic centimeter of the purest air. The principle on which the use of the biometer rests is that exceedingly minute quantities of carbon dioxide can be precipitated as barium carbonate on the surface of a small drop of barium hydroxide solution where the insoluble crystals may be observed with a lens. So delicate is the apparatus that it has been used to detect the vitality of a single kernel of wheat. The carbon dioxide production of different parts of a small fiber has been measured with the startling result that living nerve fibers are undergoing chemical changes at a remarkable rate and producing carbon dioxide to a greater degree than any other tissue of the body when equal weights are compared. But the

significant point is that the carbon dioxide production is increased as the result of stimulation. Reagents, like anaesthetics, which change the state of excitability of the nerve likewise alter the carbon dioxide production. We have here, then, a chemical criterion of life of wide applicability.

There is one other, suggested by Waller. It is the electrical sign of life. If two electrodes are placed on opposite sides of a pea, which is living, the electrodes being connected with an induction coil on the one hand and a galvanometer on the other, then it can be shown that the shock passed through a living pea is followed by a remarkable outburst of electromotive force. The current blazes out suddenly as shown by the movement of the galvanometer. "It is as if the pea jumped when stimulated." Waller called the electrical response the blaze current. When dead the pea no longer reacts to the stimulus. Nearly all kinds of tissue show these blaze currents as long as they are alive and the outburst is not only a sign of life but an index to its intensity. The two criteria, the chemical and the electrical supplement each other. Where one fails, the other serves.

Ludwig's Angina.

(Continued from page 493)

ally breaking through the capsule as did the first described case, presenting the same sequence of symptoms, as already outlined; or taking a different course, produces general cellulitis of the neck with varying symptoms depending on the course of travel of the infection. Or again, gangrene may occur in the tissue within the submaxillary capsule. The disease may, however, take a favorable course, resolution and subsidence of symptoms occurring.

While the course of the disease, to a fatal termination is usually given as from five to seven days one case has been reported (Fenwick) in which death occurred seven hours after the first appearance of any enlargement or tenderness in the submaxillary region.

The diagnosis of Ludwig's Angina is usually easy provided we bear in mind the simple fact that there is such a condition. Of course the disease begins in the submaxillary region and there is the primary seat of the disease; but it is usually not until the infection has reached the floor of the mouth

that these patients consult a doctor, and by this time it is not the trouble under the mandible that presents a most striking appearance, but that within the mouth. It is the open mouth, the swollen and protruding tongue, the dribbling saliva, the difficulty in swallowing, talking and breathing, and unless one very carefully inquires and examines, with the idea of a possible angina in mind, the original focus of infection and the true nature of the disease may be overlooked. It is usually with the diagnosis of a simple glossitis that these patients reach the consultant. The brawny appearance of the skin of the submaxillary region, the hard mass in this region and the feel to the finger on the floor of the mouth, aid in the diagnosis.

Early diagnosis and prompt drainage is the key to the situation. The three great rules of treatment are, incise, incise freely, incise well. The incision is best made parallel to, and $\frac{1}{4}$ to $\frac{1}{2}$ inch mesial to the ramus of the mandible on the infected side. This should be carried up to the salivary gland, the capsule of which should be opened and an incision made into the gland substance. Then the dissection, preferably blunt, is carried through the mylo-hyoid muscle to, but not through, the floor of the mouth. An aspirating needle may be used after the incision has been carried through the fascia, in the hope of locating a pus pocket. If found, then by blunt dissection, if possible, it is opened, the opening made larger by use of Mayo scissors or hemostat as usual in pus pockets elsewhere—**be sure of a large opening**—then drain, leaving the entire wound open. Often however, no pus is found and in such cases it is best to make multiple incisions, separating the tissues in many directions in each incision and inserting drains in all of the separated spaces.

I have yet to see a case where all of the necessary work could not be done under local anesthesia. General anesthesia is of course to be avoided if possible, on account of the great respiratory interference. Another point well to bear in mind, is that one should be always prepared to do an immediate tracheotomy, and while I have never had the necessity occur in the cases I have operated, I have had everything ready for tracheotomy during the operation.

The course of the disease going on to recovery after drainage will be seen in the following case:

H. L. Male, married, 59 years of age. A German farmer. Was first seen in consultation about 6 o'clock on the evening of July 19th, 1916. Past history and family histories negative. The history of the present illness as given by his son as follows:

The patient was in the habit of breaking off wheat straw in the fields and chewing them. Two days ago one of these stuck into the floor of the mouth and he had quite a lot of trouble getting it out. The next morning he noticed a slight lump under the left side of his jaw, which gave some pain on pressure. He paid no attention to it, however, until that night it hurt him to open his mouth and to chew. The next morning his mouth was swollen as was also his tongue. He then consulted a doctor. This was about 10 a. m. During the day his condition grew rapidly worse, until that evening he was unable to close his mouth and could neither swallow nor speak, had severe headache but no chills. When seen that night he presented the following picture:

A large well nourished man, apparently one who had worked hard, and previously enjoyed good health. The mouth stood open about a half an inch, the tongue protruded therefrom, and saliva dribbled from the mouth. The tongue was enormously swollen and showed pitting from the teeth. The patient could neither swallow nor talk and was laboring under moderate dyspnoea. There was a tender hard swelling in the left submaxillary region and the skin appeared thickened though there was no redness. The temperature was 100.6 axilla, pulse 108. Leucocyte count 16,000. At nine that night an incision parallel to and $\frac{1}{4}$ inch mesial to the ramus of the left maxilla was made extending the whole length of the bone. The capsule of the salivary gland was incised as was the gland itself, when its edges rolled out as though under great tension. Pus was encountered after incision through the mylo-hyoid muscle. The opening through the muscle was then enlarged, drains inserted and the wound dressed without sutures.

The patient passed an uncomfortable night, however the temperature was down to 98 axilla the next morning, pulse 84. Fluid was supplied per rectum. That evening the swelling of the tongue had subsided somewhat, and continued gradually to subside. On the third morning the patient was able to talk distinctly and swallow liquids. His im-

provement continued rapidly, until on the sixth day he left the hospital. The wound healed completely in about two weeks. Examination of the pus showed a streptococcus infection.

John I. McGirr, Beatrice, discussing: I do not know whether I ever had a case of Ludwig's Angina, but I rather think I did have about a year ago. The patient had a typical appearance of a case of quinsy but he had no swelling that I could find around either tonsil or even on the outside as I remember but he complained of very severe pain and tenderness about the root of the tongue. He was an ambulatory patient and came to the office every day. He seemed to keep up strength all the time. About the fourth day by retracting the tongue to the left, I found deep down by the root of the tongue on the right side, a slight bulging upward. I punctured down into the swelling with a sharp tonsil curette and got pus. I dilated the opening and a lot of pus flowed out. The next day he was practically well again and had no trouble afterward, but I do not think the salivary glands in this case were affected. I do not know that it was a typical case. He had great difficulty in swallowing and talking until I located the pus and evacuated it.

Cystoscopic Findings and Pyelography.*

Clarence Emerson, Ph. D., M. D., Lincoln.

The innocuousness of cystoscopic examinations in competent hands is now attested to by the almost universal absence of ensuing complications in hundreds of cases examined by various men.

On introduction of the cystoscope the first observation will be with reference to the ability to see anything. This will be prevented by failure of the light or by clouded medium or because the instrument is impinging against the bladder or a foreign body as stone or tumor. With blood or pus there is usually not an immediate complete failure of light but a clouding of the medium so that the bladder wall is obscured. The blood and pus may be so abundant as to make further examination at this sitting impossible.

A knowledge of normal appearances is essential. It is wise to follow a routine system of examination of the bladder wall noting the characteristics of the various parts in order. The vesical neck is clear cut showing a dull red margin. The outline is usually regular in women but variable in men depending on the size and conformation of the prostate. The interior of the bladder presents under normal conditions a glistening

mucosa about the color of skin. Musculature is not ordinarily visible but where muscle-spasm exists prominent reticulated trabeculae are seen. The vascular structure consists of a delicate network of capillaries and veins without regular arrangement. The trigone surface is smooth, more dull red than the walls and dome and is limited in front by the urethra and at each posterior angle by the ureteric orifices between which an elevated fold the interuréteric fold extends. The ureteral orifices are cup-like openings at the summit of a low mound. This mound increases in height just before the efflux of urine and recedes with the expulsion. The efflux of urine appears as a swirl of fluid.

The dome is evenly convex, pale and smooth. An air-bubble is often seen at the top. In studying abnormal appearances it must be remembered that a change of color may be due to lack of distention or extravescical tumors and that the mucosa may be discolored by drugs.

A simple hyperaemia of the bladder may be due to mild inflammation or to passive congestion. If active there are engorged arterioles, a pinker color and normal appearing mucosa between patches of capillaries. If passive the veins are engorged the color is cyanotic and the mucosa edematous. Generalized hyperaemia may mean irritation due to instrumentation, drugs, pregnancy, or pelvic tumor. About the ureteral opening it usually signifies disease of kidney or ureter. Early bladder tuberculosis is evidenced by hyperaemia at the branching points of arterioles.

An acute cystitis presents the following findings:

1. Hyperaemia. The mucosa is intensely red.
2. Edema. The surface is uneven and wavy. The tissue looks succulent. Isolated transparent prominences are seen. With the so-called edema bullosum capsule like vesicles appear.
3. Submucous hemorrhages may be seen either as bright red streaks or petechial spots.
4. Ulceration and fibrinous exudation are present where the cystitis is intense.

If the cystitis becomes chronic these additional observations are noted:

1. The color becomes a mottled red and gray.
2. Ragged looking ulcers appear.

*Read before Nebraska State Medical Association, Lincoln, May, 1917.

3. Of obstructive, prominent reticulated trabeculae composed of the muscularis are seen.

Tuberculosis of the bladder while having a rather definite cystoscopic picture can not in many cases be immediately differentiated from a simple chronic cystitis. The special findings suggestive of a tuberculous bladder are:

1. Hyperaemia of base and trigone.
2. Pronounced pus and blood which may make the examination difficult.
3. Round pearl-like miliary nodules about the ureter orifices.
4. Multiple ulcers having undermined edges and irregular outline and necrotic base.

It must be remembered that the differential diagnosis is difficult and a case of chronic severe cystitis of the above characteristics which does not respond to treatment suggests foreign body, single ulcer, neoplasm or tuberculosis. The first three of these are eliminated by the cystoscopic examination and the substantiation of the tuberculosis can usually be made by bacteriological tests to be presented to you in another part of this symposium.

Ulcer of the Bladder.

Various types of bladder ulcer may be met with such as traumatic, typhoid, solitary, tuberculous and carcinomatous. While these vary somewhat in their usual characteristics definite determination of the cause of an ulcer depends upon more than visual observance through the cystoscope.

Tumors of the bladder are usually readily seen and the determination of the number size position and type is of great value in deciding the operative procedure. The differentiation of tumors by cystoscopic examination alone is usually possible. The single pea to egg-sized symptomless nodule usually discovered accidentally is a fibro-papilloma. The villous papilloma is either malignant or potentially so. The carcinoma is indicated by its massive irregular character, infiltration of the surrounding wall and frequent ulceration. A fibro-papilloma as described above or a villous papilloma with narrow well-defined pedicle and no evident changes in the mucosa in a patient under forty may be considered non-malignant. All other bladder tumors should be considered malignant.

Tumors of the bladder may be simulated by folds of mucous membrane and rugae, by stone in a diverticulum covered with exudate, polypoid excrescences about the vesicle neck or organized blood clot clinging to the bladder wall. By careful irrigation and examination these rare confusing factors may be properly determined.

Stone in the bladder is usually seen without special difficulty. Where suggestive symptoms are present the possibility of stone should not be abandoned without systematic search of the entire mucosa for pouches or diverticulae containing stone. Occasionally one is seen projecting slightly from a ureteral orifice. If white, shining and faceted or if of enormous size they have originated in the bladder. If round or oval, reddish stones they are probably of renal origin.

Leucoplakia vesicae, varix, fistula, diverticulated bladder and parasitic inflammation of the bladder mucosa are rarer findings.

The study of the ureteral opening is one of the most important features of cystoscopy. Some go so far as to differentiate pyelitis, pyonephrosis, hydronephrosis and ureteral stone by the appearance of the meatus. While this is probably impossible for most of us in general it may be stated that:

1. Edema and inflammation of a ureteral orifice means ureteral stone, tuberculosis or advanced suppurative inflammation of the kidney.
2. A non-inflamed golf-holed opening is suggestive of dilatation and stone of the ureter.
3. Ureteral cyst formation within the bladder wall indicates stricture.

Pyelography.

The injection of the ureter and pelvis of the kidney with substance impermeable to the X-ray for fluoroscopic and radiographic purposes has encountered justifiable criticism. This criticism however was due to the selection of silver solutions. A number of serious complications and some deaths have resulted from the injection of the ureter and pelvis with silver solutions.

The ability to see the shape, size and position of the kidney pelvis and the direction and number of ureters as is made possible by pyelographic study is of such great importance that it will never be abandoned as a means of study. Fortunately the one deterrent has been apparently overcome by the employment of the non-toxic substance thorium nitrate for ureteral injection.

Burns earlier reported entire absence of toxicity in 125 cases the amounts used varying from a few cubic centimeters to almost a quart. Thousands of cases have now been injected with universally good results. With the ureters catheterized thorium solution is injected until its escape is noted about the ureteral catheter which indicates that the kidney pelvis is filled. Pyelography is especially useful in diagnosing hydronephrosis, ureteral kinks, stricture and tortuosity, displaced kidney and double ureter.

Artificial Feeding of Infants.*

C. R. Spicer, M. D., Hastings.

The cases of infants to be fed artificially may, for convenience, be divided into two classes. First, there are those more or less suddenly deprived of their mother's breast milk—maybe by death of the mother or by pregnancy of the mother, some serious illness or failure or unfitness of the mother's milk for many of the possible causes.

This is the class seen by the general practitioner and in the great majority of cases they are infants with fairly normal digestion. That is they have a normal tolerance for a sufficient amount of food for nourishment and normal growth. They usually have no intolerance for any of the three elements of food; namely, the fats, the sugars and starch nor the proteids.

It is reasonable and it is clinically true that nearly all of these babes will be comfortable and thrive if fed at proper intervals and with consistent amounts of food so long as it is reasonably well balanced in its elements.

Most cases of feeding trouble are caused by failure to comply with one or more of the conditions just mentioned. The bad cases are usually hand made; either by the mother, on her own advice or on that of a neighbor or possibly her physician.

There are, however, certain details which must be observed if we are to succeed and which are omitted from many books on the subject. For example, a babe taken from the breast and suddenly put on a formula, though consistent in its constituents with the child's weight and correct in amount for a child of that age and even if fed at proper intervals would very likely be made ill or

might soon get an intolerance for food in general or become constipated or all three of these might follow. What has been omitted? We have failed to realize that we are changing from the child's natural food to one entirely foreign to it. What can we do. Make this change very gradually, allowing the child time to get a tolerance for this new food. In the meantime he will probably cry from hunger, though not necessarily if proper care is taken, and in any event his cries are soon hushed by sufficient food as his tolerance increases.

In the great majority of cases, where artificial feeding becomes necessary, the problem is as simple as above stated because the family physician is usually consulted in the matter before any mistakes have been made.

Unfortunately, however, the above requirements are not always complied with. Perhaps an effort is made to feed the baby cow's milk. Sometimes a formula from some recognized authority is selected according to the baby's age, etc. If the child has an unusual tolerance for food he may be able to manage the formula. If not he may vomit, be distressed and colicky or become constipated.

If any one or more of these conditions arise it is taken as evidence of unfitness of cow's milk for this particular child and instead of endeavoring to learn the babe's difficulty to manage the formula a proprietary food is tried. As this food is not usually selected with reference to what it contains or lacks or what the child's needs may be the whole matter is one of mere chance. If the food selected has been a bad guess, the others are tried in like manner. In the meantime the child is acquiring an intolerance for all food. It vomits or cries or becomes constipated or emaciated as the case may be and now presents the second class above referred to. This is the usual condition of the patient when brought to one trying to do something special along this line.

The paramount question in such a case is: What is the child unable to do in the way of digestion and assimilation? What is his intolerance? In order to approach this subject rationally let us now consider food values and food compositions—natural and artificial.

It is obvious that infants of different ages and different weights and different digestive capacities will have different food require-

*Read before Republican Valley Medical Association, Holdrege, May, 1917.

ments. Also that foods of different composition will have different nutritional value. It is necessary, then, to establish some standard of food value.

The latent energy in any food product may be expressed in terms of heat when it has been burned. The unit of energy so determined and adopted is the calorie and represents the energy or heat necessary to raise the temperature of a liter of water one degree Centegrade.

From this base the heat or energy or food value of food substances may be calculated and used for comparison. By experiment it has been determined, approximately, the number of calories per pound of baby weight per twenty-four hours necessary to maintain equilibrium and growth. By this simple process it is possible to determine whether a given formula or food is correct for a child of a given weight. It is not necessary to be exact in this matter; but with reasonable approximations it is an immensely valuable guide and check on our work. The following table shows the caloric value per ounce of some of the articles commonly used in infant feeding.

Breast Milk.....	22
Cow's Milk	21
Skimmed Milk.....	11
Buttermilk	10
Cream (35%).....	100
Sugar	120
Malt Extract.....	80
Olive Oil	280

As already implied it is not enough to offer a child the proper amount of food. Sufficient cream or sugar or curd could easily be estimated and given if that were all. Of course such a ration would not be tolerated by the patient. The food must be properly balanced. It must contain, within reasonable limits, the right percent of fat, of protein and of sugar and it must be properly diluted. With this important clinical fact in mind let us examine some of the foods available for infant feeding.

Chart II—Kinds of Food.

- Hydrocarbons—Fats, as Cream, etc.
- Proteids—Curds, Meat, Eggs, etc.
- Carbohydrates—Sugar, Starches, etc.
- Salts.
- Water.

Chart III.

Showing percentage composition and caloric value per ounce of

	Fat	Proteid	Sugar	Calories
Breast Milk.....	4	1.5	6	22
Cow's Milk	4	3	4	21
Condensed Milk....	8	9	54	60
Mellin's Food.....	.24	11.5	80	120
Malted Milk	9	16.5	68	135
Nestle's Food.....	5.5	14.5	58	120

Having given some attention to the foods available for infant feeding let us now consider the infant. There is the same individuality in the abilities of babies to digest and assimilate food as there is in their temperament, their appearance or their size. This is the reason why general formulae or general foods can not be successfully applied to individual cases. This is why ready made foods can not be readily adapted to the special needs of the patient.

As above stated nearly all infants normally have a tolerance for sufficient food, if offered under proper conditions, for the maintenance of equilibrium and growth. This amounts to about thirty-five to fifty calories per pound per twenty-four hours. If the child is seen before an intolerance has been acquired by gross errors in the percentage of the constituents of the food it can be readily stepped up from twenty-five calories to whatever is necessary for a satisfactory gain.

There may be acquired all degrees of intolerance so that even mother's milk may be rejected. Briefly stated and in general terms; too much food will produce vomiting, discomfort and indigestion. Too much fat will produce the characteristic fatty stool—granular and lumpy and finally hard and dry. It is the usual cause of constipation. About 2% is the limit of butter fat that a young babe will tolerate.

A large amount of protein can be tolerated with no worse symptoms than the appearance of curd or butter-bean stools—which do no harm. This is a useful fact when the other elements of food are poorly tolerated.

Sugar intolerance is usually expressed in colic and flatulance, in foamy diarrheal stools and excoriations. It may produce vomiting if used in excess. About 6% is a safe limit. Dextri-maltose, or malt sugar, is usually best tolerated and counteracts the tendency to constipation from the fat. Without some such help few children will manage mixtures of cow's milk without becoming constipated.

Experience has abundantly demonstrated that it is not necessary nor desirable to furnish a food with, or even approaching, the percentage composition of mother's milk in order to have a satisfactory growth and development. After a tolerance has been established a child may be given a formula containing about one and one-half ounces of cow's milk per pound of patient's weight in 24 hours. I have never found it advantages to give more and many can not manage this much. When a child under such conditions does not gain it is useless to give more food. It only upsets the patient. Something else is wrong or perhaps he needs more time. If the formula is consistent in percentages and caloric value and the child is fairly comfortable but does not gain—be patient and eventually he will.

The dilution necessary—in other words the amount of each feeding—can be fairly determined, in a child of average size, by giving an ounce for each month of age plus one up to eight months. At about that age starches should be begun.

The following clinical cases will illustrate their cause, course and remedy.

Case I. Helen Mc. First child, parents young and husky. Birth weight 8 pounds. Nursed well. Plenty of nurse but patient always vomited, usually soon after nursing. Was fed often and irregularly. Three weeks ago, at three months of age, was weaned from the breast and fed Horlick's Malted Milk. Did not gain and on advice of the grandmother each feed of malted milk was supplemented with cream, one tablespoon and milk one teaspoon. The child vomited more, was hungry and constipated.

Examination showed a fairly plump babe, not crying much but hungry. Flesh soft, turgor fair. Vomits with little effort, food oozes out. Vomits immediately after nursing. No tumor felt in epigastrium and no peristaltic waves to be seen. Weight 8¼ pounds.

Before proceeding with the treatment let us consider the cause of this child's trouble.

Chart VI.

Showing what the child was receiving when presented for treatment.

Milk	4 Ozs.	Fat	1.4%
Horlick's Malted Milk..	¾ Ozs.	Prot.	1.75
Water	12 Ozs.	Sug.	4.3
2 oz.—2 Hrly	8 Feeds	26 Cal. per.	

The child was receiving a formula quite within safe limits as to composition but far too low in food value.

Cream	4 Ozs.	F	16.8%
Milk	1 Oz.	P	3
½ Oz.—2 Hrly	35 Cal.	S	4%

With grandmother's cream mixture of 16% fat and a total of 61 calories per pound per day we have a consistent cause for the condition presented.

Theatment: The child's stomach was washed on each of the three succeeding days and after the first washing the following formula was given.

Chart VII A.

Skimmed Milk.....	8 Oz.	Fat	.4%
Water	13 Oz.	Prot.	1.1
Dext. Maltrose	½ Oz.	Sug.	4.
3 Oz.—3Hrly	7 feeds	18½ Cal.	

Note (following day) formula well taken. Child cries considerable; little gas; no vomiting. No stool for 20 hours.

The following formula was now given.

B

Whole Milk	2 Oz.	F	.8%
Skimmed Milk	8 Oz.	P	1.5
Water	11 Oz.	S	5.5
Dext. Maltose	½ Oz		
Malt Extract.....	½ Oz.	30 Gal.	
3 Oz.—3 Hrly.			

Note (two days later), doing well. Cries much less. Bowels move without suppository.

The following formula was given.

Chart VIII.

Whole Milk	6 Oz.	F	1.4%
Skimmed Milk	6 Oz.	P	1.7
Water	9 Oz.	S	8.5
Dext. Maltose	1 Oz.		
Malt Extract	½ Oz.	44 Gal.	
3 Oz.—3 Hrly.			

Note (three days later), doing well. Bowels moving daily. Patient comfortable. Is gaining ½ oz. daily. Olive Oil added to make a total fat of 2% and sugar reduced to 6%. Patient now taken home returning to the office once a week, later once in two weeks or more as necessary.

Case II. Paul B. Second child, other had feeding trouble. Mother 28, hearty and intelligent. At one month of age child cries as if hungry and is losing weight. Present weight 9 lb., 7 oz. Has been fed regularly at three-hour intervals. Cries much and is constipated. Difference between weights before and after nursing 1¼ oz. Breast milk contains 2.6% fat, is retained and well digested.

We have here a condition not at all uncommon in practice. A healthy child from a healthy mother who is secreting a fairly good quality of breast milk but insufficient in quantity. Assuming that the weights of the child were correct it received about 10 ounces in twenty-four hours or approximately twenty calories per pound of patient.

Unlike the preceding case instead of condemning and discarding the breast milk available it was examined and used for what it

was worth. The indication was plain and the remedy simple. In order to avoid disturbance to the child the following low value formula was given as a supplement to each breast feeding.

Chart IX.

Skimmed Milk	4½ Oz.	F	.4%
Water	6 Oz.	P	1.5
Dext. Maltose	½ Oz.	S	6.6
1½ Oz.—3 Hrly.	7 feeds		11.5 Cal.

Note (two days later), child hungry and colicky. Was given the following formula.

Chart X.

Whole Milk	½ Oz.	F	1%
Skimmed Milk	8 Oz.	P	2
Water	4 Oz.	S	5
Dext. Maltose	¼ Oz.		
2 Oz.—3 Hrly.			15.5 Cal.

Note (3 days later), somewhat hungry but less than before. Less colic. Was now given formula.

Chart XI.

Whole Milk	6 Oz.	F	2 %
Skimmed Milk	5 Oz.	P	2.3
Water	3 Oz.	S	3.1
2 Oz.—3 Hrly.			19 Cal. per pound

Note (4 days later), doing fine, bowels move daily, sleeps well, is satisfied and gains an ounce daily.

So, in a week's time a tolerance for a cow's milk formula was acquired without disturbance to the child and a loss in weight changed into a normal gain.

The Use of Lactic Bacilli Milk.*

H. M. McClanahan, M. D., Omaha.

The following statements pertaining to the bacteriology and changes occurring in sour milk are taken from the following authors: Wm. Savage, Milk and Public Health. Allen, Sour and Fermented Milks, Commercial Organic Analysis 4th Edition, Vol. 8. Pasteur in 1857 was the first to describe a definite organism as an etiological factor in causing sour milk. It is now established that Lactic Acid is produced from the sugars in the milk by various kinds of bacteria, namely, Bacillus Acidi Lactici, Bacillus Coli, Bacillus Lacti Aerogens Streptococcus Lacticus and Bacillus Bulgaricus. Streptococcus Lacticus agrees in morphological cultural and coagulative properties with pathogenic foecal and sewage streptococci. The presence of an active organic fermentation of the milk sugar by yeasts present in the inoculating material is

the distinguishing feature between fermented and sour milks. The Bacillus Bulgaricus has exceptional power of converting Lactose into Lactic acid. This Bacillus exhibits certain difference of growths on various media and various temperatures, although it will grow freely at room temperature. Metchinkoff has called attention to this organism in recent years because of its powerful acid production and its undoubted ability to flourish in the intestinal canal. As made in their native countries, Bulgaria milks are practically always a solid curd which can easily be broken up on shaking. Metchinkoff's work has resulted in the production of relatively pure cultures of the Bulgarus and the streptococcus lactus in the form of either liquid milk cultures or in the tablets of compressed dried milk or milk sugar. These are now found upon the market for home production of sour milk. These tablets often lose their vitality because of the death of the bacillus. In unclean sour milk there is always an opportunity for spore bearing organisms that may be pathogenic. The Bacillus Bulgaricus seems to attack the milk sugar only. The statement that Buteric acid is formed by it from butter fat is erroneous in the opinion of writers. In sour milk the only change is that of lactose to lactic acid and protein degeneration is practically nil. The following conclusions may be safely drawn from the above statements:

First: Sour milk should always be made from either pasteurized or certified milk.

Second: The only change in the milk is the conversion of a certain amount of the milk sugar into lactic acid.

Third: The presence in the milk of the living bacillus bulgaricus.

The writer has been using lactic acid milk for the last seven years and this paper will deal simply with my personal experience in its use.

More of Preparation.

One lactic acid tablet of standard make is dissolved in a tablespoonful of water and stirred into one quart of milk, in a clean glass jar or pitcher. This is placed in a vessel of warm water and covered with a clean cloth and kept at room temperature for twenty-four hours. The warming of the milk hastens the growth of the bacillus. In twenty-four hours if the tablet was active the milk should be distinctly sour. Of course other

*Received for publication, September, 1917.

bacteria may sour the milk, hence, it is essential that the milk be either certified or pasteurized. It will be found that the milk at the bottom of the vessel is distinctly more sour for the reason that the bacillus grow more rapidly in the absence of oxygen. When twenty-four hours old the milk should be thoroughly and gently stirred and then modified to suit the individual case. When whole milk is used it is necessary to be careful in stirring or the milk will be churned and the butter fat will collect on the top and sides. If the sour milk is kept chilled, that is, at a temperature of 40 it will remain unchanged for several days. There is a practice of making sour milk by the addition of one or two ounces of sour milk to a pint or quart of sweet milk and continuing this from day to day. There is a possibility of danger in this mode of procedure in that if the sour milk contains any harmful bacteria they may grow and multiply as they are passed along from day to day. Two years ago I was feeding two infants—twins—upon the sour milk. The mother was preparing it in this way. After they had taken it for about two weeks and were making a substantial gain, both infants suddenly developed an acute illness characterized by a high temperature and fetid stools. Milk was withdrawn and then the sour milk was resumed, but by using fresh tablets each day. From this time on they progressed nicely during the summer. In cases where we wish to avoid fats, skimmed milk can be used instead of whole milk. When using skimmed milk I invariably have it pasteurized before having it inoculated. If the sour milk is pasteurized, then the lactic bacillus are killed and we are giving nothing but lactic acid milk and if there is any virtue in living bacilli, then their value is lost when the milk is pasteurized. Do the lactic bacilli reach the intestinal canal in a viable state? The weight of authority is that they do, but I have not been able to find any proof of this beyond clinical experience. The assumption is that the living bacilli in the intestine are antagonistic or inhibitive of the putrefactive bacilli in the intestinal canal and one of the principle arguments for the use of the lactic acid milk is based upon this assumption. It is the belief of the writer that the proteids of lactic acid milk do not form the tough rubbery curds in the infants stomach as do the proteids of sweet milk.

Indications for Use.

Lactic acid milk is useful in two groups of cases.

First: Infants convalescing from intestinal infections, chiefly those occurring during the summer months. In these cases after acute symptoms have subsided, it frequently happens that when we return to a milk diet there is a relapse characterized by fever and offensive stools. In these cases sour milk will often serve a useful purpose. My rule is to begin with diluted skimmed lactic acid milk. For example: Take a concrete case under my care the past summer with a severe enterocolitis. After subsidence of fever, infant was greatly emaciated, having lost $3\frac{1}{2}$ pounds in two weeks. It was given sour skimmed milk 3 oz., thin barley gruel 3 oz., every three hours. Two days later the stools being free from putrid odor and no rise in temperature. I began with whole sour milk 2 oz., barley gruel 4 oz., thereby increasing the fats and decreasing the proteids. At the end of the week the infant having held its own in weight, it was then given alternate feedings of modified sour and sweet milk. Four weeks later it was placed upon modified sweet milk.

The second group of cases where sour milk has been of benefit including both infants and children who have been badly fed and as a result have chronic intestinal indigestion, or in children recovering from some acute disease for example: pneumonia, nephritis, typhoid fever, or any infants or children who have a milk idiosyncrasy, and in infants suffering from frequent attacks of vomiting. In the last seven years I have fed 35 infants and children in this group upon the sour milk and while there have been some failures I cannot but believe that some of these cases could not have been restored to health without the use of this food.

Certain difficulties arise in the use of sour milk. Sometimes infants refuse to take it from the bottle. In my opinion this is the chief reason why infants are said to lose weight on sour milk. Another difficulty is that it does not flow through the nipple as readily as sweet milk. In giving sour milk from the bottle to the infant I frequently have been told that the baby would not take the feeding when as a matter of fact it could not draw it from the bottle. I always direct that new openings be made in the nipple by

means of a needle heated to white heat. This simple procedure will often change failure to success. Last summer I had under my care an infant that could not take sour milk. The mother insisted that it would not take the sour milk from the bottle. The case being desperate, I asked her to let me take the baby to the hospital where we gave it 6 oz. of modified sour milk every three hours by gavage. At the end of a week it had gained 4 oz. We then gave it the sour milk from the bottle when it took it readily and continued to gain in weight. It has been my experience in a number of cases that infants come to like the sour milk and will take it as freely as sweet milk.

Many physicians prescribe lactic acid tablets after feeding. The objection to this procedure is that if the tablet is inert, we are simply giving milk sugar.

In conclusion: Lactic acid milk is a valuable method of infant feeding. Normal infants do not require it. In my experience normal infants do not gain as rapidly on sour milk as they do on the sweet milk. This statement is based upon actual experience. It is important that the sour milk be made from pure milk. It is an erroneous assumption that the lactic acid milk cannot at some time harbor pathogenic bacteria.

CASE REPORTS.

Dento-alveolar Abscess With Sinus Through Cheek.

The following case is of interest because of its rarity. A patient, Mr. J. S., came to us for Roentgen examination, March 29, 1915. He presented an elevated ulcer on the left cheek as shown in Figure I. On close examination



FIG. I.

Photograph of the patient when he came for examination. Note the similarity in appearance to an epithelioma. Only close examination and questioning followed by Roentgen examination revealed the real source of infection.

we found that this was a sinus discharging a thin purulent substance. By inserting a finger between the cheek and alveolus we were able to feel a distinct cord extending from the opening in the skin inward and attached to the soft tissue on the outer surface of the alveolus. Roentgen examination of the teeth on this side disclosed a considerable area of bone absorption including the apices of all roots of the left upper first molar as shown in Figure II. It is unusual to find a dento-

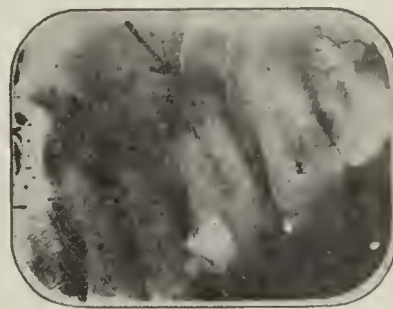


FIG. II.

Roentgenogram of upper left first molar tooth showing the area of necrosis involving the apices of all the roots.

alveolar abscess rupturing through the skin rather than in the mouth. It has been our observation that this only occurs in the molar region. When a patient presents himself this condition must be differentiated from epithelioma, salivary fistula and a sinus extending to an abscessed tooth. By proper examination of the teeth, the diagnosis can readily be made. This patient was soon relieved by having the first molar extracted and the sinus curretted. It has been our privilege to see another patient with the same condition within the last few months.

A. F. Tyler.

Resection of the Colon For Epilepsy.

Hugo W. Whightman, M. D., Omaha.

Boy aged 12 years having for the past four years from three to five epileptic attacks each week. Family history negative, no evidence of a head injury. Marked constipation for the past six years, cathartics necessary several times each week.

The boy presented the picture and showed the clinical evidence of chronic intestinal stasis, verified by X-ray and laboratory tests.

Realizing that intoxication plays an important role in a great many cases of epilepsy and having determined the source of the intoxications in this case as being due to a spastic and motor deficient colon, a colectomy was suggested. November, 1916, the boy was operated on at the Lister hospital. We resected the entire colon including the terminal six inches of the ileum as shown by the shaded portion in Figure 1. the proximal end of the ileum being united by means

of a Murphy button to the upper end of the Sigmoid, Figure 1. The operation requiring 40 minutes, the post operative course being without complications, no signs of shock manifested at any time, button passed on the 10th day. Since the operation the patient has had only two attacks, these occurring during the third week following the operation and since has been entirely free from convulsions, has a daily bowel movement without the use of cathartics, is in the best of health and gaining in weight.

Short circuiting operations between ileum and colon or sigmoid without the removal of the useless portion of colon will not offer any hopes of overcoming colonic intoxication. Figure 2 shows an operation of this kind (Ileo-sigmoidostomy) an anastomosis between the terminal ileum and sigmoid but without the removal of the colon, such operations are in the great majority of cases useless, frequently harmful. Theoretically one would be of the opinion that the iliac contents would empty into the sigmoid as shown in Figure 2. Arrow 1. In several of my former cases in which an ileo-sigmoidostomy was performed (Figure 2) without resection of the colon or severing and closing the ileum distal to the anastomosis we positively demonstrated that the greater part of the iliac contents, in spite of the anastomosis opening would follow its natural direction as shown in Figure 2. Arrow 3. Also to some extent a vicious circle being established by which some of the sigmoid contents enters the ileum and thence proceeds to the caecum Arrow 2, Figure 2. In selected cases colectomy is physiologically and symptomatically successful, short circuiting operations alone are unphysiological and only occasionally the results are beneficial.

Abstracts.

Accidental Hemorrhage.

James A. Harrar, M. D.

Bulletin of the Lying-in Hospital of the City of New York.

"Permit spontaneous delivery to progress, when the patient in the first or second stage of labor begins to bleed slightly with no other symptoms."

"Rupture the membranes, (only after the cervix is dilated to three fingers or more). 1. When the patient in the first or second stage begins to bleed moderately or profusely. 2. If with slight bleeding labor pains subside. 3. If with slight external bleeding symptoms develop of concealed hemorrhage."

"Cervico-vaginal packing with 2 per cent iodoform gauze. 1. In a case with moderate hemorrhage with cervix closed or less than three fingers dilated. 2. If rupture of membranes fails to institute good pains. 3. If bleeding continues after rupture of the membranes, pack for four to six hours to hasten dilation of cervix and to control bleeding by pressure on uterine vessels."

"Forceps, to hasten labor in second stage if bleeding continues, or if fetal heart shows signs of danger impending to child."

"Version, only in cases with cervix fully dilated, with head above brim and uterus not tonic. Braxton-Hicks version is not of value as in placenta previa."

"Manual dilation of the cervix is generally dangerous and only to be employed to ream out the remaining rim of a fairly well dilated cervix before proceeding with version, never in the form of an accouchment force in a cervix of three fingers dilatation or less."

"Cesarean section, in a concealed hemorrhage with closed cervix, baby either dead or alive; especially in the cataclysmic disruptive cases occurring before the onset of labor."

"Hysterectomy, only in cases of accompanying rupture of the uterus."

A. B. Somers.

Vaccination for Whooping Cough.

George W. Goler, M. D., Rochester, N. Y.

New York State Journal of Medicine reports 396 cases of whooping cough with 29 deaths.

Hess in New York City in one of the orphan asylums, reports that of the children in the infectious wards at Rochester Municipal Hospital, none came down with whooping cough who were exposed to it, if they had been previously given three protective inoculations of pertussis vaccine of 500 million, one billion and two billions (in older children sometimes larger doses) four days apart. The health bureau advertised free vaccination during the summer at child welfare stations. Physicians were in attendance and nurses let it be known through each district that free vaccination against whooping cough was available. These stations were closed in September and the vaccination for those who desired it against whooping cough was carried on in schools having school nurses. All told, physicians in practice and the bureau, more than 10,000 children were vaccinated. Up to April, 1917, estimated from reply postals sent by physicians, less than 5% of those vaccinated came down with whooping cough.

Joseph M. Aikin.

Clinical Congress of Surgeons.

The eighth annual session of the Clinical Congress of Surgeons was one of the most important and helpful meetings that has ever been held in the United States. It will probably be the last time we will ever get these same men together again. There was a wonderful array of surgical talent brought from all parts of the world. Beside those of high standing in the surgical world, men of note came to give addresses on war subjects. Among those who came to tell us of their experiences were, Surgeon General Wm. C. Gorgas of the United States Army, Surgeon General W. C. Braisted of the United States Navy, Surgeon General Rupert Blue of the United States Public Health Service, Colonel T. H. Goodwin of the British Army Medical Service, Colonel C. Dercle, Representative of the Medical Department of the French Army, Major Chas. H. Mayo, Medical Reserve Corps and President of the American Medical Association, Sir Berkeley Moynihan of Leeds, England, Major Geo. W. Crile of Cleveland, H. D. Dakin, M. D., of New York, Wm. O'Neill Sherman of Pittsburg, Honorable Josephus Daniels, Secretary of the Navy and many others.

The greatest popular ovation was given to Colonel C. Derclé, representing the French army. In his remarks he made the statement that he knew the ovation was not intended for him personally but was for his beloved France, and I think that he voiced the sentiment of those present.

Sir Berkeley Moynihan proved just as wonderful a speaker as he is a writer, being able to tell in a most interesting manner of his various experiences in war surgery at the front. Of all the different things about which he spoke, we feel that his description of what has been accomplished in the surgery of the chest was the most interesting. Perhaps we feel thus about it because it seems that more advancement has been made in this line than any other one branch of surgery. He described in a most graphic manner how it was possible for him to remove the lung from the chest and extract foreign bodies from it, replace the lung into the chest and have it reexpand. Another startling statement was to the effect that the patient suffered practically no pain thereafter.

Sir Berkeley Moynihan also discussed the different methods used for returning the wounded soldiers to service as rapidly as possible. Full discussion was given to the use of the Carrel-Dakin solution and also of other methods used. In summing it up, he gave the advantages and disadvantages of the different methods. The Carrel-Dakin method causes the wound to heal with a minimum scar but it requires a long tedious convalescence. Application of the solution requires about an average of 160 dressings, requires constant attention and cannot be given during the period of transportation of the patient. During this period of transportation he has often seen a wound which appeared clean, spring up into the foulest kind of a wound, necessitating surgical treatment. Under war conditions, where it is hard to get sufficient surgical dressings and sufficient help and when transportation is frequently imperative, he felt that the Morrison method was preferable. This method consists of radical removal of all of the injured and infected tissues as far as it is possible to determine that by the surgeon's eye. After this removal the wounds are closed and the dressings are not changed for one week, allowing the wound to heal by primary union. This eliminates frequent dressing and pain to the patient, the expense of many dressings and allows of much quicker recovery. It does leave greater deformity and a larger scar. Occasionally when the surgeon thinks he has removed all of the infection and has closed the wound he finds that the infection has sprung up fresh and it causes disastrous results. We feel that the remainder of the discussion added but little to what Sir Berkeley Moynihan had already given us.

It is impossible to pay a personal tribute to the many other leading surgeons who addressed the meeting but we wish to say that there was not a single idle minute from seven in the morning to midnight each day. No banquets were staged and every moment was devoted to seeing other surgeon's work and going over the discussions of the various cases presented. The attendance of this congress was well worth the money and time to the men who wished to become acquainted with what other men are doing in a surgical way.

A. F. Tyler.

COUNTY SOCIETY NOTES.

Several weeks ago a group of representative women physicians of Lincoln and vicinity organized what is known as the Medical Women's Club of Lincoln. Dr. Daisy Hansen is the president of the organization and Dr. Laura Brown the secretary.

The thirteenth annual meeting of the Fifth Councilor District of the Nebraska State Medical Association was held in Blair, October 24. Papers were read by Dr. M. Wood of Tekamah, Dr. S. A. Swenson of Oakland, Dr. G. H. Rathbun of Fremont, Dr. A. P. Overgaard, Dr. W. H. Pruner and Dr. C. A. Roeder of Omaha and Dr. J. C. Agee of Fremont.

A "physicians' unit of Cedar county" was organized by a number of physicians from all parts of Cedar county at a meeting in Hartington. The physicians were the guests of the Commercial club, being welcomed to the city by Mayor Nelson following an informal banquet.

Dr. C. C. Sackett of Laurel, presided and when the organization was decided upon Ernest Llewellyn was elected secretary.

Cards bearing the following will be furnished to physicians who go to war:

"This is to certify that Dr..... of....., is and has been my regular physician. On account of his absence for military service, I desire to make this declaration that proper credit may be given him by his fellow practitioners who attend his patients during his absence."

One-third of the fees collected will then be turned over to the family of the doctor who has enlisted.

A resolution was also adopted stating that a firm effort would be made to discourage any attempt by any physician or surgeon to establish himself in the place and practice of any physician who goes to war.

The physicians who formed the organization are J. C. Hay and C. C. Sackett, Laurel; F. E. Braucht and F. G. Dewey, Coleridge; J. M. Johnson, Fordyce; F. P. Dorsey, Hartington; F. W. Fletcher, Belden; B. F. Gleason, Randolph.

NOTES.

Dr. O. D. Johnson of Brady has removed to Kearney.

Dr. Paul E. Koeber has moved to Columbus where he will engage in practice.

Dr. G. B. Potter of Osceola attended the Congress of Surgeons in Chicago.

Dr. M. Stewart of Tecumseh has been ill and confined to his bed for several weeks.

Dr. F. D. Haldeman of Ord has moved to Lincoln where his son is taking the pre-medical course in the University.

Mrs. John E. Summers, wife of Dr. J. E. Summers of Omaha, while visiting in Chicago sustained a fractured femur.

Dr. George M. White of Greeley has accepted a position at the Nebraska State Hospital for Insane at Ingleside.

Dr. J. A. Waggener will take up the practice of his son, Dr. W. R. Waggener who will move from Humboldt to Colorado.

Dr. Beverly A. Finkle of Fairbault, Minnesota, has been appointed first physician at the hospital for the insane at Norfolk to succeed Dr. Harry Carson who has gone into the army.

Dr. E. C. Henry of Omaha has been appointed by the board of control to act as chief surgeon at the Nebraska Orthopedic Hospital at Lincoln during the absence of Dr. J. P. Lord.

Dr. B. F. Williams for several years superintendent of the State Hospital for Insane at Lincoln has tendered his resignation to the Board of Control to take effect January 1st. Dr. Williams will engage in private practice in Lincoln.

The clinical congress of surgeons, meeting in Chicago, has united with the American college of surgeons, and the enlarged organization henceforth is to be known as the clinical congress of the American college of surgeons. The union was effected at a meeting of the clinical congress held late today. The officers of the new organization are: President, Dr. John G. Clark, Philadelphia; first vice president, Dr. James B. Eagleson, Seattle, Wash.; second vice president, Dr. F. N. G. Starr, Toronto, Can.; secretary, Dr. Franklin H. Martin, Chicago; treasurer, Dr. Allan B. Kanavel, Chicago.

Dr. William J. Mayo of Rochester, Minn., was elected as the president for the term following that of Dr. Clark.

Major C. E. Codman of Philadelphia and H. H. Gross, president of the universal military training league, spoke at the meeting preceding the election, their subject being military training. A resolution was then adopted urging on congress along the passage of a measure along the lines of the Chamberlain bill for universal military training and that the cantonments now used by the national army be utilized for such work.

MILITARY NOTES.

Dr. Gleason of Randolph has been commissioned as lieutenant in the Medical Reserve Corps.

Dr. W. W. DeWolf of Bennett received his commission as captain in the Officers' Reserve Corps.

Dr. J. S. Taylor of Steele City has received his commission as captain in the Medical Reserve Corps.

Dr. J. J. Fossler of Waterloo has received his appointment as an officer in the Medical Reserve Corps.

Dr. C. L. Wills of Broken Bow has received his commission as Captain in the Medical Officers' Reserve Corps.

Dr. Gerbig of Friend is at Fort Oglethorpe, Georgia, where he is taking special technical training as a military surgeon.

Dr. J. A. Peters of Papillion is in training at Fort Riley, Kansas. His practice will be cared for by Dr. Yates of Palmyra.

Dr. D. D. King of York received notice from Washington to report at once at Camp Oglethorpe, Georgia, for service in the medical department.

Dr. A. E. Gadbois of Madison received his commission as captain in the medical division of the Officers' Reserve Corps of the army.

Dr. Charles Laird of Bradshaw who has been doing army work in Chicago returned for a few days' visit, but was recalled to Chicago and will leave for some point in New Jersey.

Dr. Neal P. McKee who has been practicing medicine at Atkinson spent a few days at Willow Island before leaving for Fort Oglethorpe, Georgia, where he has been commissioned as first lieutenant in the medical department.

Dr. M. Wood of Tekamah has received his commission as captain in the Medical Reserve Corps. Dr. Wood is the third doctor to enter the service from Tekamah, the others being Dr. Henry Johnson and Dr. Warren MacGregor.

Dr. Harry R. Carson, first assistant physician at the Norfolk State Hospital, left for Ann Arbor, Michigan, to take intensive training preliminary to his entrance into the national army with the rank of captain. He will take a special course of training in nervous and mental diseases.

Major J. P. Lord, professor of orthopedic surgery in the University of Nebraska College of Medicine, Omaha, has been called to Fort Riley to assume charge of the orthopedic division in the base hospital at that point. During Major Lord's absence his instructional work in the College of Medicine will be taken over by Dr. Robert R. Hollister. Dr. Hollister will also care for Dr. Lord's patients during his absence.

MARRIAGES.

Miss Anna Wright of Schuyler and Dr. Paul J. Flory of Pawnee City were married at Schuyler, October 6. Dr. and Mrs. Flory have gone to Great Lakes, Illinois, where Dr. Flory has been commissioned as assistant surgeon. Miss Wright is a graduate of the Clarkson Hospital and Dr. Flory is a graduate of the University of Nebraska College of Medicine.

NECROLOGY.

Dr. Dale Chaloupka of Wilber died at Boulder, Colorado, October 5. Dr. Chaloupka was a graduate of the Creighton Medical College and was associated with the Lincoln Sanitarium until a few months ago.

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Cystocele, Perineum Damage and Rectocele.*

P. H. Salter, M. D., Norfolk.

It is my experience, that in all women, having borne children, at least 75 per cent have had tears of greater or lesser degree of the perineum. These may be of the slightest, involving only the fourchette or the most extensive tearing through the whole body of the perineum into the rectum. If at time of confinement these injuries had been carefully repaired and had kindly healed we would have little occasion to consider the subject of this paper. But, sad to relate and much to womankind's discomfort, I think I am putting it at too low a rate when I say that 75 percent of those who have been torn have not been repaired successfully.

Twenty-five years ago, it was the exception

rather than the rule for the ordinary practitioner to sew up a ruptured perineum and if he did, as a rule, the stitches were merely through the skin and the muscles and deeper tissues were not coaptated. Owing to better training much of this has been improved, but under the most careful technic a large percent of those stitched up following confinement fail and a secondary repair becomes necessary at a later period.

Cystocele and Rectocele are the direct results of an unrepaired torn perineum, although there are cases of both where there has been no injury to this structure. This is particularly so of rectocele which may be the result of a relaxed vaginal outlet, from many confinements or an inherent weakness of the muscles.

Before considering the repair of these conditions, it may be well to take up the anat-

*Read before the Nebraska State Medical Association, Lincoln, May, 1917.

omy of the female perineum. The perineum in the female is much like that in the male. It has a central point at which converge the external sphincter ani from behind and the superficial transversus perinei muscles from each side and the bulbocavernosus muscles from the front. The ischiocavernosus lie along the rami of the pubes. These superficial muscles are reinforced by the deep transverse perinei muscle, which comes from the ramus of the ischium on the side to insert by its anterior fibres around the urethra, its middle fibres into the vaginal wall, and its posterior fibres at the end of the vagina anteriorly, then into the central point of the perineum, next into the lower end of the rectum and finally into the coccyx. The deep layer of the superficial fascia (Colles' fascia) and the triangular ligament being pierced by the vagina are not so marked as in the male—between them lie the ischiocavernosus bulbocavernosus and the superficial transverse perinei muscles.

Of all these structures the most important in the injury to the perineum is the levator ani muscles and it is these bodies that must be correctly readjusted in our attempts to repair the conditions that we are considering.

To quote Gray: "The Levator ani is a broad thin muscle situated on each side of the pelvis. It is attached to the inner surface of the side of the true pelvis and, descending, unites with its fellow of the opposite side to form the floor of the pelvic cavity. It supports the viscera in this cavity, and surrounds the various structures which pass through it. It arises in front from the posterior surface of the body and the ramus of the pubes, on the outer side of the symphysis; posteriorly, from the inner surface of the spine of the ischium; and between these two points from the angle of division between the obturator and recto-vesical layers of the pelvic fascia in their under part; the fibres pass downward to the middle line of the floor of the pelvis, and are inserted, the most posterior fibres into the sides of the apex of the coccyx; those placed more anteriorly unite with the muscle of the opposite side, in a median fibrous raphe, which extends between the coccyx and the margin of the anus. The middle fibres, which form the larger portion of the muscle and are inserted into the side of the rectum, blending with the fibres of the sphincter muscles; lastly, the anterior fibres, the longest, descend upon the side of the prostate gland to unite beneath it with the muscle of the opposite side, blending with the fibres of the external sphincter and transverse perinaei muscles in the tendinous center of the perineum.

The anterior portion is occasionally separated from the rest of the muscle by cellular tissue. From this circumstance, as well as from its peculiar relation with the prostate gland, descending by its side, and

surrounding it as in a sling, it has been described by Santorini and others as a distinct muscle, under the name of the levator prostate. In the female, the anterior fibres of the levator ani descend upon the sides of the vagina.

It is in relation by its upper or pelvic surface with the rectovesical fascia, which separates it from the viscera of the pelvis and from the peritoneum; by its outer or perineal surface, it forms the inner boundary of the ischio-rectal fossa, and is covered by a quantity of fat, and by a thin layer of fascia continued from the obturator fascia. Its posterior border is continuous with the coccygeus muscle; its anterior border is separated from the muscle of the opposite side by a triangular space, through which the urethra, and in the female the vagina, passes from the pelvis.

Actions.

This muscle supports the lower end of the rectum and vagina, and also the bladder during the efforts of expulsion.

The old idea that the perineum is a wedge of tissue, a so-called "perineal body" like an inverted key-stone of an arch is a false conception of the true anatomical and mechanical construction present. The chief support then is the levator ani muscle, as described above, stretching behind the outlet of the vagina from the right to the left pubic ramus. Any operation for the repair of the condition of relaxed vaginal outlet must take into consideration injury of these muscles and their proper anatomical replacement.

As I said at the beginning of this paper, the very great majority of injuries to the perineum arises during parturition although a few may be produced by direct violence. In all cases of injured outlet, repair should be performed at once or as soon as possible afterwards.

For the purpose of description, injuries to the vaginal outlet may be considered as being of three degrees. One of the first degree which tears through the fourchette and some of the lax superficial tissue and may extend a short distance up into the vagina. Of the second degree, where it extends through the perineum to the anal sphincter separating the all important levator ani muscles. Of the third degree extending through the perineum, the sphincter ani, into the bowel for a greater or lesser extent.

The slightest form of tear in injuries of the first degree may be left alone but if it involves more than half inch of tissue a suture of chromic gut should be introduced and the skin edges carefully approximated. This will preclude healing by granulation and leaving perhaps a tender scar. If the tear is more extensive, involving more of the perineal tissue and extending up into one or both

sulci of the vagina, it becomes necessary to make more careful repair. The patient should be turned across the bed with a Kelly-pad under the hips in a good light. I believe it better to give an anaesthetic as then one can do much more careful work. The torn parts are approximated with chromic cat-gut sutures commencing at the upper angle of the wound in the vagina and finishing by two or three in the external skin wound. The repair should be carefully looked after for several days and the most scrupulous cleanliness be observed. These injuries nearly always heal very kindly if the above precautions are carefully carried out.

In tears of the second degree the injury is frequently caused by the head of the child in parturition starting a tear in the perineum and the aftercoming shoulders separate the fibers of the levator ani as the body is delivered. This tear may extend up into one or both sulci of the vagina and not tear the external skin of the perineum or this latter structure may be torn also and a wide gaping wound is the result. In either condition, if the repair is not done immediately the results are serious with relaxed vaginal outlet at a later date with all its accompanying distressful symptoms. Following confinement the vagina should be carefully inspected in a good light. If the tear is as serious as above described, the patient should be placed on a table, an anaesthetic should be given, the parts carefully cleaned, removing all blood clots and attention given to the bleeding points. The labia should be separated by a speculum and if necessary the anterior vaginal wall should also be held out of the way. It is well to place a loose pack in the upper part of the vagina to keep the blood from flowing over the field. The sutures are carefully placed about one-fourth inch apart beginning at the upper angle of the wound. These may be either twenty-day chromic cat-gut No. 1 or silk-worm gut. I prefer the cat-gut myself and have always had it hold plenty long enough to get perfect union. In placing the sutures care should be taken to include all the torn tissues. The needle should enter about one-fourth inch from the edge of the wound and brought out at the bottom, then returned and come out an equal distance from the edge on the opposite side. This insures the muscle being carefully approximated as well as the mucus membrane. When the suturing has been completed in the

vagina there will be only a shallow pit on the skin surface which can be easily brought together with two or three superficial stitches.

In the after treatment of these cases the same care should be taken with the wound as we mentioned in the wounds of the first degree. The patient should be kept in bed for full two weeks but it is not necessary to restrict her movements particularly.

Tears of the Third Degree.

This laceration extends from the fourchette through the skin perineum in the median line through the sphincter ani for a variable distance up the recto-vaginal septum. The tear in the rectum forms a serious complication destroying the function of the sphincter muscle and causing incontinence of feces and flatus.

It is most necessary to repair the injury at once. The patient should be treated as suggested in the foregoing cases—on a table, in a good light and an anaesthetic given. The first step in the repair is to bring the severed bowel wall together. Beginning at the upper end, chromic catgut sutures are placed about one-fourth inch apart, piercing the mucus membrane and being brought out at the septum, then through the septum on the opposite side coming out through the mucosa on that side.

This is continued down to the sphincter which latter must carefully have its ends brought together. The rent in the vagina is then repaired as described under tears of the second degree. As a last measure of safety three or four silkworm deep sutures should be placed in the perineum to reinforce the cat-gut and insure perfect sphincter union. The bowels should be moved on the third day with oil and an enema and not allowed to become constipated afterwards. The deep sutures may be taken out from the 6th to the 8th day and the patient kept in bed full two weeks.

If these tears of the perineum, such as we have been considering, have not been repaired at the time of injury, there follows the condition which Kelly describes as "The Relaxed Vaginal Outlet," with its attending and accidental features of rectocele, cystocele or rectocele and cystocele, or laceration of the perineum in varying degrees. Dr. T. A. Emmett years ago described the gaping

opening as "the mouth of a bag without the draw string."

On examination of a patient with this condition, with the legs flexed, we find the cleft between the buttocks flattened and broad. The vaginal outlet is more or less open and the anterior or posterior walls of the vagina, or both, may protrude as a cystocele or rectocele. If the patient is told to bear down, these become much more marked and in severe cases may protrude through the labia. On palpation with two fingers in the mouth of the vagina it will be discovered that the levatorani muscles, which should form the floor of the pelvis, are absent and their presence is only shown by slight pits on each side. If the tear has gone completely through the anal sphincter it will be found as a band behind, with its two extremities as small dimples on the skin surface. With these supports of the perineum removed the whole contents of the pelvis tend to sag down and descend. The uterus may not at first show this tendency if held up well by its ligaments, but sooner or later if the patient leads a life of activity, it will come down and we may have a condition of complete prolapse.

There are two operations which I will describe briefly, for the repair of this condition; the first based on the procedure of Dr. T. A. Emmett of New York. There have been innumerable modifications of this operation but I shall confine myself to the one that I believe gives as good results as any.

This operation for the repair of the perineum is essentially a resection of the mucus membrane and surplus tissues and the bringing the parts together in their normal relation by sutures. The first step is to determine the amount of denudation necessary. It is well to inspect the parts carefully, bringing the labia together with the fingers to make out the exact limits for denudation. It is well to figure an over correction as there will be some relaxation subsequently. After determining the extreme points at which to begin, the resecting, we can fix them with long sutures or tenaculae. One may use, if they prefer, a Gelpi's Perineal Retractor which does away with one assistant. A third tenaculum or suture is placed in the median line posteriorly at the tip of the posterior column separating the sulci. When these three are drawn upon we find two triangular spaces which should be outlined by a sharp

knife. A base line is drawn from the outer end of the two lateral incisions following the posterior edge of the mucocutaneous edge of the vagina. The area thus outlined is denuded with a pair of Emmet's curved scissors, removing the whole thickness of the vaginal walls in long narrow strips. All bleeding points should be carefully attended to with ligatures and the oozing stopped with hot pads. The large area is now brought together with carefully placed chromic gut sutures; the sulci first and afterwards the external surfaces. A few deep silk worm gut sutures may be placed in the skin to support the catgut and relieve tension. These should be removed from the sixth to the eighth day.

The second method is the operation introduced by Lawson Tait—the so-called "flap-splitting" operation. This, like Emmet's, has had a great many modifications by numerous operators and as it would be impossible, in the limits of this paper, to even name them, much less describe, I will give the method I follow in my own work.

With the patient in Sim's position, careful inspection of the torn parts is made and the limits of repair needed, determined, a U-shaped incision is made following the mucocutaneous border from caruncle to caruncle at the introitus vaginae. The tissues of the vaginal wall are carefully dissected loose from those of the rectal wall forming a large flap which is carried upwards into the vagina—the entire septum being split from side to side. After the incision through the skin, and a short distance of cicatricial tissue which usually exists underneath the skin, the separation of the flap may best be carried forward with the finger covered with three or four thicknesses of gauze. The dissection should be continued until the levatorani muscles are well bared. Some four or five silkworm stitches should now be placed as tension sutures. I use them threaded on two needles—beginning at the bottom of the wound with one needle and coming out of the skin surface about an inch from the edge on one side. The other needle carries the gut through the opposite in the same way and the ends are secured by forceps until ready for tying later. The levator-ani muscles are now brought together with No. 2 twenty-day chromic catgut. Usually five interrupted sutures are enough, then the loose tissues are approximated with a running suture of the same material. A running cat gut

suture is passed on the under surface of the vaginal flap along its edge which, when drawn together, puckers up the edge and makes a new floor for the vagina. The skin edges are now brought together with a continuous catgut suture and lastly the tension sutures are lightly tied. This makes a first-class perineal body and it effectually cures the rectocele and tendency to pelvic prolapse.

Prolapse of the Uterus.*

A. I. McKinnon, M. D., Lincoln.

The application of efficiency principles to the practice of surgery should be a paramount issue with the modern progressive physician. Any surgical procedure that shortens the number of hospital days per patient, enlarges the hospital's facilities by so much, and if in addition, it lessens post operative pain and discomforts while permitting just as thorough surgical relief as more antiquated methods, it certainly should command the most critical investigation by the profession.

A brief consideration of the physiologic functions of the pelvic organs, shows that nature has made provision for both the physiologic and anatomic changes, to-wit: The monthly congestion and enlargement; the incidence of pregnancy with its associated anatomic changes and the quick restoration to normal following the delivery of the child, and the fact that the upper part of the vagina, the cervix, the uterus and the tubes are poorly supplied with sensory nerves, as demonstrated by the fact that lacerations and erosions of the cervix rarely cause local pain. Many women lead a fairly active life with chronic pus tubes. All this goes to show that pelvic organs are so subject to traumatism, both physiologic and pathologic, that they are more or less immune to shock from surgical procedures.

In prolapse of the uterus which is in reality a hernia of the pelvic floor, the condition should be treated as any other hernia, viz, by restoration of the parts and obliteration of the sac. This can only be done through the vagina, the operation being as follows:

Make anterior vaginal section into the pelvis. Make vertical incision through the vagina almost to the urethra, dissect vaginal flaps from the blad-

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der, amputate cervix, remove sufficient posterior vaginal fornix to get rid of slack. If you have faith in round ligament operations you can do the Baldy Webster or the Coffey operation. Next bring the utero sacral ligaments and part of the broad ligaments and stitch them to the front of the cervix. Stitch the posterior fornix of the vagina to the cervix and os, trim anterior vaginal flaps and stitch to the uterus, high up. This pushes the bladder up and brings the uterus into anteversion and restores vagina. The operation exemplifies efficiency and conservation. The parts are restored to normal position, nothing is sacrificed but redundant cervix and vaginal tissues. Future pregnancy is not interfered with.

Compare this with the following classic operation for procidentia in which the uterus is bisected and its belly expurgated and likewise dehorned. The bifurcated remains are inserted on either side between the rectus and sheath, anterior or posterior, according to choice. Said operation may answer the purpose for which it was intended, but is a little hard on the uterus and could hardly come under the head of conservative surgery of the uterus.

In conclusion, I beg to submit the following:

- (1) The vaginal route is the rational method of pelvic surgery.
- (2) That gynecologists made a tactical mistake which lost them prestige as specialists, when they took on too much territory and foreswore efficiency and conservation.
- (3) Conservative operations on the tubes are easily possible through the vagina, for instance, tubal pregnancy and pus tubes. Conservative abdominal operations for these conditions are scarcely dreamed of.
- (4) Recovery from operation is much more rapid, is practically painless and convalescence is not extended over a period of months before the patient is herself again.
- (5) No possibility of hernia.
- (6) No visible scar.
- (7) In fat women it is the operation par excellence.

Fistulae of the Pelvic Outlet.*

(With Special Reference to Recto-Vaginal and Vesico-Vaginal Fistulae)

F. A. Long, M. D., Madison.

Fistulae involving the pelvic outlet are usually considered under three general heads: fecal, genito-urinary and ureteral, to which a fourth should be added, a peritoneo-vaginal.

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Of the subdivisions occurring under these general forms there are a dozen, but for the purpose of this symposium it must suffice to consider recto-vaginal and vesico-vaginal fistulae.

Recto-Vaginal Fistula.

Causes leading to the formation of recto-vaginal fistula are cancerous involvement of the recto-vaginal septum, tuberculous or syphilitic ulceration, rupture of pelvic or peri-rectal abscess, through the septum, faulty healing of a complete tear of the perineum, faulty approximation and injury in doing perineorrhaphy, direct violence, neglected and badly fitting pessary.

The patient is unable to control gas and bowel movement, and is annoyed by the presence of feces and irritation of the pelvic outlet. In small fistulae solid feces will not pass through the opening. The diagnosis is completed by inspection of the parts, by injecting a colored solution like methylene blue, chalk water or milk into the rectum watching for its appearance in the vagina through the fistulous tract, and by palpation, searching with a probe on the vaginal surface, with the index finger of the other hand in the rectum.

In cancerous cases nothing can be done to repair the defect. Active tubercular cases likewise promise very little. In syphilitic cases a prolonged course of anti-luetic treatment is a prerequisite to the successful repair of the fistula. Fistulae the result of various accidental causes have been known to heal under rest in bed, antiseptic vaginal douches, mild laxatives and soap and water enema. Unfortunately, few of us can hope to ever see such a happy result.

Before undertaking to operate for the cure of a recto-vaginal fistula the patient must be kept on a liquid diet for several days, the bowels must be thoroughly emptied by a mild laxative and enema.

Two operations are much in use in this condition: division of the entire pelvic floor below the fistula, and the flap splitting operation of Lowenstein. Each has its advocates and each its place. Divulsion of the sphincter and placing a tampon in the rectum above the fistula is necessary to protect the field of operation.

If it is decided to divide the pelvic floor, a grooved director is passed through the fis-

tula as a guide to the knife and the parts divided. The margins of the fistula are freshened by cutting away a strip, the pelvic floor is brought together as in any perineorrhaphy by twenty-day chromic catgut, the stitches being placed at quarter inch intervals. The spincter muscles are preferably united by silk sutures. The vaginal wall and skin are preferably united by non-absorbable material, silkworm gut being my preference.

Lowenstein's method consists in retracting the posterior vaginal wall with a weighted speculum, using two lateral retractors, freshening the fistulous tract down to the rectal mucosa from the vaginal surface. A half inch vertical incision is made in the vaginal wall, above and below the fistula and an elliptical portion of the mucus membrane connecting the distal ends of the incisions, is removed. Ten day chromic catgut is used to approximate the rectal wall, the stitches not passing through the mucus membrane. The vaginal walls are approximated with non-absorbable material, and iodoform gauze loosely packed in the vagina. A drainage tube containing a light gauze wick is passed into the bowel to facilitate the passage of gas. The bowels must be kept confined for at least five days, and longer if possible. Castor oil or a saline reinforced by enemata is given to move the bowels and the bowel should be washed out with normal salt solution after a bowel movement. After forty-eight hours the gauze pack is removed from the vagina and daily antiseptic douches given. Catheterizing the patient to prevent soiling of the wound is strongly recommended.

With the best care the results of operation for recto-vaginal fistula may be disappointing, for the stitches may become infected and gas tension within the bowel may unduly strain the stitches.

Vesico-Vaginal Fistula.

Vesico-vaginal fistula is a communication between the bladder and vagina which may involve only enough tissue to admit a small probe or may entirely destroy the vesico-vaginal wall. The opening may be linear, oval, elliptical or angular. It may result from carcinomatous invasion of the septum, from pressure and ulceration due to an ill-fitting pessary, and from various other traumas, the most frequent being pressure during labor. Prolonged pressure of the fetal head produces sloughing of the part of the

vaginal wall impinged on. The application of forceps through a cervix not fully dilated may cause a laceration extending beyond the cervix and through the adjacent vesico-vaginal septum.

When fistula results from pressure necrosis the resultant fistula does not appear until sloughing of the traumatized tissue has made a breach in the vesico-vaginal wall, which period varies, with the individual cases. I can perhaps best exemplify this by citing a case occurring in my own practice: Patient of phlegmatic temperament, 35 years of age, the mother of six children, had never had the assistance of an obstetrician in any of her previous labors. She had not felt well for ten days preceding the onset of labor, had had considerable thirst and frequent and rather copious urination, and a partial inability to get about. She had had some labor pains for thirty hours before I saw her, and the last eight hours, pains had been severe. She lived twelve miles from town and when I arrived the head of the child had been at the outlet for some hours but would come no further; in fact this state of affairs was the immediate cause of my being called. Maceration of the child's head showed at a glance that the child was not living, and the bloated condition of the face showed beginning decomposition. Bringing the patient to the edge of the bed, with great effort I succeeded in delivering the shoulders, and even then the rest of the body had to be delivered by traction. The child by nature very large, was so bloated as to have in great measure lost semblance of human being. The cord was fully one and one-half inches in diameter throughout its entire length.

The uterus and vagina were thoroughly irrigated with lysol solution, in view of the septic condition of the fetus, and the history of probable septic absorption by the mother. A specimen of urine drawn from the bladder some hours after labor gave a specific gravity of 1036 and a decided reaction to Haines' test for sugar. The urine responded to the sugar test for four days, lessening each day, and then disappeared. (It may be noted here however, that this patient has since become a confirmed diabetic).

A pain in the vagina and a strong odor of decomposition twenty-seven days after labor led to an investigation which revealed a sloughing patch in the anterior vaginal wall just forward of the anterior cervical margin,

which also had a fissure in line with the necrotic mass. Ten days later or thirty-seven days after confinement, leakage from the bladder into the vagina was reported. In ten more days all the slough had separated, leaving a fistula, the opening of which into the bladder admitted the tip of the index finger and was located just forward and was continuous with the laceration of the cervix.

Fistula produced by direct tear in instrumental delivery is called to the attention of the medical attendant by the patient's inability to void and by a history of profuse flow per vaginam. A glass catheter passed into the bladder will bring away nothing but a little blood in the eye of the catheter. A finger passed into the vagina while the catheter is being manipulated in the bladder will encounter the end of the catheter through the rent in the septum.

The development of the pressure necrosis fistula has a characteristic symptomatology: Painful urination following labor, bloody urine, cystitis, febrile temperature, a foul smelling vaginal discharge suggestive of the odor of decomposition, and finally dribbling of urine.

Fistula complicating the puerperium cannot be operated until that period is past. Fistula, the result of pressure necrosis cannot be operated until every particle of necrotic tissue has separated. These statements are self-evident, but they will bear repeating.

The irritating effects of the urine on the vaginal and vulvar mucus membrane and the skin of the perineum and thighs is very distressing to the patient.

Inspection with a Sims' speculum in the vagina will reveal the fistula if the opening is large enough. A sterile colored solution injected into the bladder will find its way through the smaller opening and will demonstrate the location of the fistula. The cystoscope may be used to locate the vesical end of the fistula. Small fistula are said to sometimes heal under rest in bed, bladder irrigations with boric acid solutions and occasional mild stimulation of the granulations with silver nitrate, but the cases must be so few as to be negligible.

In preparation for operation for the cure of vesico-vaginal fistula the bladder and vagina must be irrigated daily, the former to prevent or cure cystitis, and the latter to keep the vaginal mucus membrane free from

incrustation of urinary salts and to prevent and subdue irritative vulvo-vaginitis. Urotropin should be administered to render the urine sterile.

No operation is to be considered until every vestige of sloughing tissue has been removed and the parts present a healthy appearance. When, however, conditions are favorable for operation, the operation should not be long delayed. For several days before operation, the patient should be on a liquid diet and the bowels must be thoroughly emptied.

The lithotomy position is generally used and will be described herein. The field of operation having been thoroughly prepared a weighted speculum is introduced to retract the perineum and lateral retractors are used to bring into better view the field of operation. When the fistula is a simple one with straight lines and the sides can be approximated with tenacula without much tension, simply denuding the margins of the fistula with as little loss of tissue as possible, bevelling the edges to give it a funnel-shaped appearance, the greater diameter on the vaginal surface is required. Silk worm gut sutures $\frac{1}{4}$ to $\frac{3}{16}$ of an inch apart are passed from the vaginal surface through the musculature to the mucus surface of the bladder, but not through the mucosa. Care must be exercised in tying the ligatures to have the bladder wall nicely approximated, not too tight, but just tight enough. I have operated two cases by this method with the happiest results.

The operation of Mackenrodt, freely separating the bladder from the anterior vaginal wall before attempting to close the opening in the bladder is generally used. The extent of the needed separation depends on the size and location of the fistula. If the fistula is large and there has been great loss of tissue the separation must be extensive, and may extend up the anterior wall of the bladder to the peritoneal fold. The direction of suture must be governed by the ease with which the edges can be approximated whether that be transverse, oblique or longitudinal. The bladder is closed with interrupted sutures of chromic catgut passed through the muscular coat, but not through the mucus membrane, so that when tied the mucus membrane is turned into the bladder. Care must be taken to avoid the ureteral openings in passing stitches. Silk worm gut is used to close the vaginal wall. Complete closure of the vaginal

wall may not be possible owing to loss of tissue and in such case the vaginal wall may be stitched to the closed bladder, and allowed to heal by granulation. The vagina is lightly packed with iodoform gauze which should be removed daily after forty-eight hours, and antiseptic douches given.

Where the loss of tissue is so great that the bladder cannot be sufficiently mobilized to bring the edges together, cases are reported where the cervix or uterine wall, sutured to the edge of the bladder was utilized to close the fistula. Cases are reported in which operations through the vagina have failed, owing to dense connective tissue immobilizing the vault of the vagina, where by a supra-pubic operation, the bladder was opened and the fistula closed from within the bladder.

The after-care of these cases consists of continuous drainage of the bladder by a self-retaining catheter, or the bladder cathetrized every two or three hours under the strictest asepsis. The stitches should not be removed before the twelfth day and the patient should remain in bed until after the removal of the stitches. Several things impress me as of utmost importance in the care and operation of these cases: The necessity of keeping the bladder and vagina sterile from the time of accident until the time of operation; the placing and tying of the sutures just tight enough, and yet not too tight, and the drainage and irrigation of the bladder.

Discussion on Papers by Dr. Salter, Dr. McKinnon and Dr. F. A. Long.

F. L. McLeod, Lincoln.—I want to say a word relative to one paper here in regard to prolapsed uterus. I want to place my unqualified endorsement on Dr. Hilton's statement and emphasis of the abdominal route in handling these cases. We must take into consideration the pathology and etiology on the start if we wish to intelligently handle these cases. I repeat what I have repeated a great many times—that the causes, broadly speaking, of prolapsed uterus are decreased support below, and increased weight above. In these cases there are simply two things to do. Remove the cause of the decreased support below, and repair what is above that is not doing its duty; e. g., repair the ligaments, etc.

Taking into consideration the condition brought about by the decreased support below and the increased weight above it is simply a matter of congestion in the uterus itself and the endometrium and the adjacent structures, with lacerations both cervical and perineal—which means increased weight—the increased weight without full support meaning

increased tension upon the ligaments which of necessity stretch and allow descension.

I am pleading completeness in this series—not one condition. Repair the cervix by amputation or trachelorrhaphy, curettage and packing. Repair the perineum, and by the abdominal route place the uterus in position and retain it there by one of the many methods in vogue.

Personally I have followed the method of Guiliam in bringing the round ligaments up through the abdominal wall, and suturing them to each other, very satisfactorily.

Success in my estimation depends largely upon thoroughness and completeness.

C. P. Fall, Beatrice.—I want to emphasize what the last speaker said. I never try to apply the forceps unless upon the table. We all agree upon restoring the pelvic viscera to its normal position in our operative procedures and I have never seen two operators operate the pelvic floor alike, but there is one principal that it seems to me that has not been touched upon here, and that is the source of infection that we have to contend with in each one. My first effort in repairing a recent laceration always is to seal the angle of the laceration. If it is complete laceration all the more care needs to be exercised in suturing the mucous membrane of the rectum and vagina. Then the parts are easily restored to their normal position.

The care of these wounds after they are operated. I think that all drainage is disagreeable to the patient and many times it holds the secretions in the vagina and the rectum and over the surface of the wound and acts as a positive injury and I have seen many good operations come to naught through the lack of care. I never repair a perineum or do any pelvic work without I stand by and watch the nurse apply the dressing. I have seen nurses put on a T bandage and a large compress and put the bandage so tight that it strained the muscles and caused the patient much pain after she had been put back in bed. I treat these wounds almost open without any dressing at all, with the use of a light loose band. If a tight band is put on many times the feces are liquid and the bandage holds the secretions up against the wound and that is why we get so many failures. I believe the time will come when we will put no dressings on these wounds at all but we will instruct the nurses to keep them clean because so many times we have a suppurative condition in our patient on account of holding the secretions up against the wound.

W. L. Sucha, Hastings.—I want to say a word in regard to prolapsus uteri. There is no doubt Dr. McKinnon is exactly right when he says that prolapsed uterus is a hernia and should be repaired as a hernia. If the floor is gone it should be repaired and an attempt made to replace the organs in as near a natural position as you can. We cannot hope to improve on nature. In regard to the cause of prolapsed uterus being congestion and weight. I cannot agree with that, because we often find the most severe prolapses, the most complete prolapses, in women who have passed the menopause and who have a small uterus and a small pair of ovaries. Personally, in my very limited experience, I have

seen three cases of ileus where the Guiliam has been done. One of these patients died and that patient would probably not have died if she had not had her prolapse treated at all. So I want to place the stamp of disapproval upon any plan that will attempt to improve on nature. Anything we can do by shortening the ligaments or any way that they can be held up is to be commended, and I simply want to say that anything we can do to put them back in as near the natural position as we can, we should do.

D. C. Hilton, Lincoln.—Dr. Salter made a splendid suggestion in stating that lacerations immediately following delivery should be repaired with the same degree of care and surgical surroundings, aseptic and otherwise, as would accompany delayed repair. From my experience at the bedside of a woman who has just given birth and needs repair, the repair is ordinarily done in a very unsurgical manner. The stitches are taken through and through. Usually no buried sutures are taken. A suggestion I would make in regard to taking the sutures, in addition to what the doctor says, is, that two or three buried sutures should always be taken through the deep muscles or else a figure eight suture be taken so that the one loop of the eight goes through the deep muscles and the other loop comes out superficially. Take enough stitches alternating the knots of the figure eight stitches so that some are on the skin surface and others on the mucosa. Cause of one failure is that haphazard stitches are taken and when they are tied the mucosa and skin are drawn together and the muscles are squeezed apart. Thus the usual repair results in converting an open laceration into a hidden laceration, for you know that there are some lacerations in which the deep structures of the perineum are torn and the mucosa and skin remain intact.

Regarding Dr. McKinnon's paper, which gives us an interesting description of a device that seems to be largely his own, there are, of course, multitudes of operation for prolapsus and we must treat each case according to the conditions found physiologically and automatically. Many cases require laparotomy: this is my usual procedure. I only resort to vaginal section in a few selected cases. Some reasons for ventral incision are, to explore and do work on various viscera, to correct diastasis of the recti muscles and to obtain freer access to the immediate parts involved, and their supporting structures.

Every time we have a chance to make an exploratory incision during a necessary operation on the contents or supports of the pelvic and abdominal cavities, we should make it. There are many things we do not know and never can know unless we get our hand in the abdominal cavity and can follow the finger with the eye.

Dr. Long brought us, I think, the most difficult and technical subject, that of fistulae in the perineum and I think here is where we are more apt to fall down than in the surgery of the other two subjects discussed. Fistulae are really surgical problems of no small importance and try the very greatest skill of the most experienced surgeon. We have to consider in the repair of fistulae special conditions in the care against infection. Dr. Long has brought out that we should do it with antiseptic

and aseptic precautions at the time and that we should use anything that will help to fight infection. A common cause of failure is tension on the sutures. This is due to two faults—faulty selection of tissue material and incomplete dissections. We should never put our sutures in until we have our parts so free that when they are put together they simply lie there and require no pulling on the stitches to hold them. Another precaution is to avoid tension and retention in the bladder and rectum. In the repair of recto-vaginal fistulae I have been in the habit of placing a long tube in the rectum and allowing it to remain there intermittently until union has occurred. The bladder should never be allowed to hold more than three or four ounces before being emptied by one means or another. Another feature that will make for success is to prevent as far as possible duplication of suture lines. We have to make at least two rows of sutures, one for either surface, and possibly one or more buried layers. These should not lie in the same cross section, nor overlap each other.

A. B. Somers, Omaha.—Just a word in regard to immediate operation. What we mean by immediate operation depends absolutely on conditions and available help. If a woman is confined in the hospital with all that we want in the way of environment and help, the repair may be done immediately after the placenta has been delivered. If the delivery is done in some dirty house with very little help, and we are very poorly prepared to do the work, it means waiting until daylight for an operation. This latter condition often delays the operation, sometimes twelve or twenty-four hours. In my opinion, there are many men who repair the perineum by poor light in the night and without proper help. They are not repairing the perineum at all, they have simply put in a few stitches. One point more, if the stitches through the perineum proper, which we call the skin stitches, are subcutaneous and do not cut through the skin at all, we will save our patient very much discomfort.

P. H. Salter, Norfolk.—Only one point, and that is putting in the deep stitches in repairing the perineum. I have seen a great many of these cases suppurate and of late I have been using two needles on silk worm gut. I introduce one needle the depth of the wound from within out, coming out of the skin rather than going into it. The skin of the perineum is probably one of the hardest places in the anatomy of man to render clean and by introducing the needle from the outside you are almost sure to carry infection from the skin into the deeper parts of the wound. But by using the two needles one can avoid this contamination and the carrying of bacteria of supperation into the deep tissues.

A. I. McKinnon, Lincoln.—I do not believe that any surgeon, no matter how expert, is competent to sew the torn muscles, sheaths and the fascia while the parts are distorted and swollen, immediately following delivery, and even if he were successful in picking up the ends of the torn muscles and stitching them, the stitches will be loose in a few hours when the swelling has subsided.

In my opinion the proper time to repair a torn

perineum is from twelve to twenty-four hours after delivery. At the time the swelling is all gone and it is possible to outline the different layers of the perineum and make a correct anatomical repair. If you are going to repair it immediately there is only one way to do it, and that is to use a large full curve needle and embrace a large amount of tissue and if you are lucky you may get the different layers approximated.

In regard to prolapse of the uterus: The first case I operated on I did the Kelly operation and tacked it up to the belly wall. In a few weeks the patient had discovered while sitting on the toilet that the uterus prolapsed. She sent for me and I found the uterus was up where it ought to be and I said she was mistaken, but in the course of another week or two she sent for me again, saying the uterus was down. The explanation was that the uterus is fastened to the abdominal muscles, and whenever she strained it forced the cervix down. I decided that suspending the uterus from above without obliteration of the hernial sac was not good surgery. If we are not going to fix the hernia of the pelvic floor from below, I would like to know of some operation that will fix it from above. The round ligaments are not taut in any belly I have ever opened, so I do not think they have much to do with supporting the uterus.

I think the expert anatomist will tell you that the uterus is balanced like an inverted cone and the balance is maintained around the cervix. The correct surgical treatment is to go in there, if you are not too timid, dissect the vagina free from the bladder, the bladder free from the uterus and you have all the room you need to do whatever plastic work is necessary to restore the pelvic floor and you will do it according to correct anatomical principles.

Fractures in the Vicinity of Joints.*

Charles O'Neill Rich, M. D., Omaha.

It would be quite impossible to discuss in a paper of this nature all varieties of fractures which occur in the vicinity of joints, so we will limit the discussion to a study of some of the more common fractures of this nature.

Transverse fracture at the lower end of the radius was first described in 1841 by Colles, a famous Irish Surgeon. Since then much has been written on the subject and with the more frequent use of the X-ray, our knowledge of the mechanism of these fractures has increased. Though Colles' name is still used, and made to cover other than transverse fractures above the wrist joint, fractures at the lower end of the radius, would be more comprehensive and better express our understanding of their mechanism. They are always the result of indirect violence and

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most frequently caused by a fall, the force of which is broken by the hyper-extended hand.

The lower end of the radius is very cancellous, while the shaft contains a good deal of compact bone. Laterally it is united to the lower end of the ulna by a powerful triangular fibro-cartilage. The anterior ligament of the joint is the strongest ligament, while the posterior is the weakest. When the hand is hyper-extended as it is usually in a fall great strain is brought to bear upon the anterior ligament, it does not rupture, but the force is transmitted through the slipping of the first row of carpal bones, in the cup like articular surface at the lower end of the radius. The anterior ligament not yielding tears off part or all of the cancellous tissue. This cancellous tissue may be split as the carpal bones press against it or forced into the lower end of the diaphysis, there may be separation at the epiphyseal line or the diaphysis may be impacted by the force of the fall into the smaller cancellous fragment.

The deformity of this fracture is quite characteristic and is caused by the slipping backward of the lesser fragment, as the result of the pressure from the carpal bones. The displacement is limited by the force of the fall and the strength of the surrounding tissues.

The treatment depends upon our understanding of the mechanism. Splints should not be blindly applied, but a careful replacement of the lesser fragment should be done, preferably under a general anaesthesia. The hand is placed in dorsal flexion and at the same time traction is made on the hand; this will disengage the lesser fragment from the surrounding structures, and permit pushing it in place within the thumb. Continuing to hold the fragment in place, and keeping up constant traction on the hand, it is carried into palmar flexion, when the lesser fragment will go completely in place and the continuity of the bone is restored.

The arm should be dressed in a well fitting dorsal splint, padded and extending from the elbow to the metacarpal bones only. Anteriorly a graduated compress about three inches long and not more than a quarter to three-eighths of an inch thick, should be placed so that its lower edge reaches about one-half inch above the carpo-radial articulation. This

is placed above the fracture, so as not to permit of any pressure on the lesser fragment, if this precaution is not followed the smaller fragment may be easily dislocated posteriorly.

On the second or third day, we remove the splint and commence to gently massage the hand and forearm and passive motion of the wrist joint is employed, this is continued daily for nine days with longer massage and slightly increasing passive motion of the wrist. The patient is instructed to exercise the fingers. The splint is then removed during the day and put on at night after a couple of weeks the splint is entirely discarded. The wrist is strapped and the patient is told to exercise the hand more freely, firm union takes place in a month. One must exercise judgment in applying this mode of treatment to young children. Some surgeons do not use splints at all in the treatment, but depend upon a snug bandage to hold the fragment in place.

Fractures around the elbow joint are divided into those occurring immediately above the condyles, of the external or internal condyle and of the upper end of the ulna or of the radius. The line or lines of fracture may make different forms and include two or more combinations of the above divisions.

It is not our purpose to enter into a discussion of the various positions of fixation of the elbow which have been employed in the treatment of fractures in the vicinity of the elbow. The method of fixation is very acute flexion. The so-called Jones position and as further elaborated by Ashurst, Neuhof and Wolf in this country give results far superior to those obtained by any other method.

Neuhof and Wolf gave the results of a critical study of 100 cases of these fractures, in a paper before the New York Academy of Medicine in 1915. They showed that in those cases in which mobilization and massage was begun in the first week after injury the results in twenty-nine cases were 92% perfect while in those in which mobilization and massage were begun at the end of two weeks only 63% were perfect. Most of the unfortunate results of the treatment of these fractures is the limitation of flexion of the arm. Before the arm is placed in hyperflexion the fracture should be reduced, the completeness of this should be verified by

the X-ray, the arm is then placed in hyperflexion and by this is meant, the most acute flexion the elbow can be placed in, without the obliteration of the radial pulse. Ashurst says it is unimportant whether the forearm is placed in pronation or supination. Care must be taken to protect the fold at the bend of the elbow with a suitable small pad of gauze, the hand is bandaged leaving the fingers free, it is then carried around the wrist several times, having previously protected the bony prominences. The bandage is then carried around the arm as high as possible, then to the wrist and so on down to the elbow, taking alternating turns around the elbow for support. It is well after the dressing is applied to take another picture, to be sure the fragment is in good position.

At the end of the first week mobilization and massage is commenced. The best rule as to the proper employment of mobilization and massage is pain which should be practically absent.

The elbow in this treatment is supported, then beginning with gentle stroking massage of the arm, slight extension and flexion of the elbow, this is carried out gently and at no time must there be any sudden movement of the arm. One should first gain the confidence of the patient, and mobilization and massage should be employed only in so far as it causes practically no pain. These treatments should last about 20 minutes and gentleness should be the watchword as by rough handling the fragments may easily be displaced. These treatments are repeated daily or less frequently as thought best in the individual case. Children as a rule require a longer period than adults for treatments. The length of time depends on the individual and upon the union of the fracture, the average length of time is three weeks.

Fractures around the shoulder joint—The humerus in its articulation with the glenoid cavity of the scapula has almost unlimited motion. The humeral head is held in the glenoid cavity largely by the powerful muscles which surround the joint. In this location fractures bearing on the subject of this paper are through or above the tuberositis, and of the surgical or anatomical neck of the humerus.

The minor fragment because of the mobile joint is not easily controlled unless we bear in mind the exact purpose to be accomplished. The position of the smaller fragment can be controlled or changed only by and through the major fragment and every attempt to immobilize it in its proper relation to the major fragment presupposed or demanded control of the position or disposition of the larger frag-

ment. In all instances of fractures near joints, when the smaller fragment is more firmly fixed by joint structures and other tissues to the segment of the limb beyond the joint, than it is to the larger fragment, some position of the segment of the limb or of the whole limb must be found for the proper alignment of the fragments and for their maintenance in that position.

In an endeavor to attain this ideal the arm must be placed in a position to conform to the position of the shorter fragment. After a fracture in this location the arm may be in any position, usually the upper end of the diaphysis is below and internal to the minor fragment and the smaller fragment is rotated outward and abducted, by the shoulder muscles.

The usual method of dressing the arm in a right angle splint at the side of the body, and rotated with the forearm and hand across the body does not secure the component parts of the fracture in alignment. In the treatment of these fractures, the arm should be abducted and rotated so the major fragment meets the minor fragment as demonstrated by the X-ray. The arm should be dressed in abduction, maintained by a moulded plaster triangular splint, well padded, which holds the arm away from the chest wall. It is held in this position for ten days, when passive motion and massage is instituted, three or four times a week, about four weeks being necessary to complete the treatment.

Fractures of the neck of the femur formerly were regarded as occurring almost exclusively in old age and the results of their treatment were notoriously bad. In the annals of surgery Vol. XLVIII Ashurst quotes Sir Thomas Myles as saying: "My own experience of the result of routine treatment in these cases is not very encouraging, I have found that in nearly all cases occurring in adults there has been considerable shortening and consequent lameness, some stiffness in the knee joint, a varying degree of muscular atrophy, pain with changes in the weather and almost always an ugly knot of callous to be felt or seen at the seat of the united fracture."

We now know a large number of cases occur under the age of 50, and in view of a better understanding of the anatomy and mechanism of these fractures, the results are far better under conservative treatment than formerly. The old division of these fractures into intra and extra capsular, we regard as somewhat misleading. The capsular ligament of the hip joint is attached to the femur in front along the anterior inter-trochanteric line, while behind it is attached a fingers breadth to the innerside of the posterior inter-trochanteric line. The majority of these fractures are oblique and therefore may be intra-capsular in front and extra-capsular behind.

The neck of the femur is apt to break in one or two places, at its junction with the head, or at its base. We would use therefore the classification subcapital and fractures at the base of the neck. The posterior part of the neck and greater trochanter is weaker and not so well protected therefore suffers the most crushing. The head fragment is driven into this crushed mass of bone, the neck is shortened and the angle of its axis is changed relative to its posi-

tion on the femoral shaft in either plane, the apex of the angle being directed upward and forward.

According to speed fractures at the base of the neck into the trochanter are frequent and are the class formerly described as extra-capsular. The displacements are about the same as fractures higher upon the neck, and in some cases, on account of the direction of the force applied on the trochanter the shaft fragment is rotated inward and displaced backward so that the leg lies in inversion. The greater trochanter may be severely comminuted, large fragments can be loosened and displaced by both violence and muscular action or the trochanteric area can be impacted and telescoped into itself with little axial displacement, but with shortening and other gross evidence of fracture.

Because of the strong tendency of an increase of the deformity (shortening) when the limb is used in cases of impaction, due to a gradual lessening of the angle between the neck and shaft, Royal Whitman suggested the advisability of breaking up the impaction, so when the opportunity arises the deformity may be reduced.

With an understanding of the anatomy of these fractures one can readily see the futility of treating them by the ordinary Bucks extension, sand bags and splints. One should not attempt to adjust the minor mobile fragment to the shaft, but rather make the limb conform to the position of the fragment. In 1902 Whitman advocated a method based on anatomical principles which has given most excellent results. Abduction of the leg is limited by the angle of the neck with the shaft, part of the ilio-femoral ligament and the greater trochanter coming in contact with the ilium. When this angle is lessened abduction is restricted, now as this is a constant symptom restoration of the normal range would imply a correction of the deformity. Whitman's method of treatment is as follows: The injured limb of the anaesthetized patient is flexed on the abdomen and rotated inward, by this manipulation any folds of the capsule that may have fallen between the fragments are disengaged. With counter traction by placing a towel against the perineum, or by the perineal rod, traction is made until by measurements the length of the limbs is shown equal, the limb is then abducted until the angle produced is equal to that of the abduction of the sound limb, during abduction traction is maintained, the joint is supported, the thigh is pressed upward from beneath, endeavoring to force the fragments forward against the tense anterior wall of the capsular ligament. In this manner the rim of the acetabulum is used as a fulcrum, the thigh as the lever and depends upon the

strength of the anterior part of the capsular ligament or the ligament of Bigelow.

When the normal range of abduction is reached as compared to the opposite side one may infer the deformity has been corrected. Now if the limb is fixed in a position of extreme abduction, repair should take place in an approximately normal position. A cast is then applied with the limb in this position, from the axilla to the toes, it should completely cover the buttock and be heavily reinforced beneath the joint. The cast is left on for five or six weeks, it is then removed and if bony union has taken place, a lighter cast is applied, the patient is now allowed on crutches, an hour or two a day. In another six or eight weeks the cast is removed and then a lift placed under the foot of the uninjured limb, so as not to permit any weight on the injured limb, nor should any weight be permitted for six months.

The particular advantages of this attitude are summed up by Eisendraft as follows:

1. When the extended limb is placed in complete abduction, the trochanter is firmly opposed to the side of the pelvis, so that upward displacement of the femur is impossible.

- II. In this attitude the capsule is made tense, thus it should serve to direct fragments toward one another.

- III. The depressing influence of muscular contraction is removed since the abductor group is relaxed, while the contraction of the psoas iliacus muscle in this position would draw the fragments toward one another.

There are a certain number of cases of fracture of the neck of the femur, which in spite of any conservative method we may employ, fail to unite or in which we have fibrous union. This is especially true in old people, but the results in children and young adults will be far better, when the case is treated along anatomical lines, and that more useful limbs, with less deformity will be the result.

Fractures above the ankle joint, involving either the external or internal malleolus alone or together are very common and are generally treated under the title of Pott's fracture. The cause is a twist, eversion and abduction of the foot. There are two forms dependent upon whether the fracture is caused by eversion or inversion when the foot is forced out-

ward or the foot is firmly fixed and the limb bent outward, the fibula is broken two to three inches above its lower end, the internal lateral ligament is put on a stretch and either tears off the internal malleolus or is ruptured. When the foot is inverted, the fibula is fractured by the tension of the strong external lateral ligament and at times the internal malleolus is forced off by pressure.

In the reduction of this fracture the foot must be placed in such a position that the minor fragment which now have become an integral part of the foot is in proper relation with the major fragment, this is accomplished by placing the foot at right angles to the leg, a position of full normal supination. The leg is then held in position by a fracture box, splints and sand bags or a moveable cast. In all these cases, early motion and massage aid us much in attaining the desired results.

Surgical Treatment of Uterine Hemorrhage.*

Palmer Findley, M. D., Omaha.

It is no easy task to define the limitations of surgery in the management of uterine hemorrhages. Where the hemorrhages are the result of structural alterations in the pelvic organs, there should be no serious difficulty in the application of surgery, but where aberration of functions is responsible for the loss of blood, very perplexing problems arise both in diagnosis and treatment.

The so-called "essential" or "functional hemorrhages" which occur with greatest frequency at the times of puberty and the menopause present problems of the utmost perplexity, bound up as they are with countless theories and hypotheses relating to the internal secretions.

Let us first briefly consider the surgical management of uterine hemorrhage due to structural alterations in the pelvic organs. Too often surgery fails in this class of cases for want of an exact diagnosis. We are to bear in mind that the lesion responsible for the loss of blood does not necessarily reside in the uterus, but may reside in the uterine appendages, or in structures adjacent to or remote from the uterus and its appendages.

Until recent years the endometrium was charged with the responsibility for a large proportion of uterine hemorrhages. Now it

is generally accepted that endometritis is responsible for but a limited number of cases of uterine bleeding. It follows that the curet has been largely superceded by non-surgical methods on the one hand, and by more radical surgical methods on the other hand.

We are indebted to Hitchman and Adler for a better understanding of hypertrophic and hyperplastic changes in the endometrium. Prior to their published observations we regarded such changes in the endometrium as pathological and ascribed many of the hemorrhages from the uterus to them. Now we know them to be largely due to the cyclic changes of menstruation and are therefore physiologic, having no part in uterine bleeding. My own experience agrees with that of Wagner, who permanently controls uterine bleeding by the curet in but ten per cent of cases.

It follows that in the absence of polyps, retained products of conception, and tumor formations residing in the endometrium, we must search more widely for the underlying causes of uterine bleeding.

Much has been written of late years on the anatomical changes in the myometrium as factors in the causation of uterine bleeding, and the general concensus of opinion places the myometrium in the foreground as an etiological factor in uterine hemorrhage. These myometrial changes, whether of an increase in the connective tissue elements at the expense of the muscular elements, a decrease in the elastic tissue, or arteriosclerosis, cannot be permanently influenced by the curet, and may baffle all medical agents commonly employed for the control of uterine bleeding. Such cases may well be treated with radium or the X-rays, but where no contradiction to surgery exists, the removal of part or all of the body of the uterus, will afford the most effective means of controlling bleeding, but there is ample justification for the choice of the X-ray or radium leaving to surgery the few cases which fail to respond to radio therapy. Inasmuch as such cases commonly occur near the time of the menopause, the dictum is clearly expressed that no case of so-called "climacteric hemorrhage" should be treated by radium or the X-rays without first doing an exploratory curettage to exclude the possibility of cancer.

Bleeding fibroids of the uterus demand surgery and should not be treated by radium,

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X-rays, or any other non-surgical procedure unless operative measures are contradicted by serious complications. Where the blood is below forty per cent I have made it my rule to precede the radical operation by curettage and rest in bed until the blood has been built up to a point of reasonable safety for operation. Here again it is imperative to do an exploratory curettage and make a microscopic examination of the scrapings to rule out the possible existence of cancer in patients advanced in years.

Cancer of the uterus is a surgical lesion and demands early surgical intervention. Radium and the X-rays have their place in the treatment of inoperable and recurrent cancer, and as an adjunct to surgery, but in all operable cases there can be no justification for the substitution of surgery by radium or the X-rays. I believe radium to be our most valuable means of prolonging life and relieving suffering in inoperable and recurrent cancer cases—this much and no more can be expected, or should be attempted. I have had most gratifying results in relieving uterine hemorrhages due to cancer of the cervix by applying the curet and cautery and following this by repeated applications of acetone. I have recently observed such a case in which I am unable to discover any evidence of cancer after a period of four years following the initial treatment. Such results are seldom attained, but I am convinced that the curet and cautery followed by acetone applications is our best substitute for radium in the treatment of inoperable cancer of the cervix. My preference is for radium, but unfortunately the remedy is not always at our command.

What, if any, surgical measures should be employed in controlling the hemorrhages of puberty? I here refer to that class of cases in which there is no demonstrable pathology. In such cases curettage should only be resorted to when general measures have failed, and unfortunately the curet will usually fail to control the bleeding. The administration of calcium, thyroid extract, pituitrin, horse or human serum, one and all may be tried, and if found wanting, curettage is next on the list. The application of the deep, penetrating rays to the ovaries will doubtless bring results in a proportion of cases, but in so doing follicular atrophy of the ovaries, as a result of the rays, may permanently do away with the menstrual periods and effectually sterilize the individual. Having no ex-

act means of controlling the effect of the rays on the ovaries, I have never felt justified in employing them in the young.

Uterine hemorrhage of ovarian origin is a most interesting phase of the subject. Much has been written of late years, and it may be said that practical experience justifies the assertion that hemorrhages from the uterus are not infrequently due to hyper-function of ovarian tissue. The uterus may be perfectly normal yet the menstrual periods may be excessive. Numerous observers contend that chronic inflammations and tumor formations of the ovaries are at times associated with hyper-function of the remnants of normal ovarian tissue, and excess of ovarian secretions is responsible for not only excessive loss of blood from the uterus, but for hyperplastic changes in the endometrium, and uterine musculature.

Certain it is that lutein cells secrete and determine the menstrual flow. Just what part the follicular epithelium and the interstitial glands of the ovary play, is not certain. I have repeatedly demonstrated that the resection or removal of an ovary, which is the seat of a chronic inflammation, or a persistent corpus luteum, will control bleeding from the uterus, and I have frequently observed failure to control hemorrhage by the use of the curet and until such inflamed ovaries are radically dealt with.

Uterine hemorrhage of ovarian origin is a fruitful field for investigation and clinical experience, as well as experimental observations, establishes the fact that the uterus may be essentially normal, and yet bleed excessively as a result of hyperfunctionating ovaries.

Roentgen Ray Treatment of Uterine Hemorrhage.*

Albert F. Tyler, B. Sc., M. D., Omaha.

The assignment of this subject as a part of a symposium on uterine hemorrhage gives the scope of the paper. For the sake of clearness, however, we wish to say that the following types of hemorrhage will be omitted from discussion in this paper because unsuitable for X-ray treatment, viz: all hemorrhages of pregnancy or the puerperium and all hemorrhages caused by systematic disease. We shall attempt to discuss the types

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of hemorrhage which are suitable for X-ray therapy and to show what can be accomplished by this method of treatment.

That we may explain the action of the roentgen ray upon a physiological and pathological basis when used in the treatment of uterine hemorrhage let us refer briefly to the explanation of normal menstruation. It has been quite definitely proven that the flow of blood at the menstrual time is due to action of the corpus luteum which is absorbed into the circulation from the ovary rather than to a shedding of the endometrium. It is a well known fact that menstruation ceases after removal of the ovaries and recurs again following grafting of ovarian tissue into the castrated female. The action of the roentgen ray upon the ovary is to destroy the corpus luteum, the ripening follicles and if carried far enough the primordial ova. From this fact it will be seen that one can hold in abeyance any uterine hemorrhage where temporary castration or cessation of the development of the ripening ovarian follicles has a beneficial influence upon it. In the excessive hemorrhages in young women without demonstrable pathology, the roentgen treatment is ideal promising one hundred per cent cures. The beauty of it is that one can produce just the result desired. Unless carried on without regard to dosage there is little, if any, danger of producing permanent sterility in young adults. To bring about permanent sterility would require not only massive treatments at each seance but the seances would have to be continued over a prolonged period of time until the graffian follicles in the ovaries were all destroyed. Some authors have even advanced the idea that mild treatment judiciously given is beneficial in younger women. In no case has there been reported an instance of children borne after such treatment deformed either mentally or physically. The quick response following treatment of these young women is surprising, in one instance coming under the author's observation one single treatment of twenty Holzknecht units over each ovary stopped a hemorrhage within a few hours. This patient, a girl of fourteen, had been bleeding for three weeks resisting all the usual methods of treatment and had become so anemic that she was carried into the office. There are a considerable number of women near the climacteric who have marked menorrhagia or sometimes metrorrhagia who can be helped by roentgen therapy. These

women usually have borne several children, are well worn out and yet have no demonstrable cause for the bleeding. A few seances of roentgen treatments will stop all bleeding, thus shortening the period of the climacteric and allowing them to be about their duties.

In addition to the treatment of metrorrhagia in young women there is a large class of patients of mature age and at the climacteric which is greatly benefited by proper roentgen treatment. We refer here to those patients who have actual pathology to account for the hemorrhage. One of the most common causes is fibroid tumor of the uterus and happily this type promises excellent results from this kind of treatment. Of course every case of uterine hemorrhage occurring about the menopause is essentially carcinoma unless proven otherwise, so that every method of diagnosis which will throw light upon the patient in hand should be used. We feel that all cases of uterine hemorrhage past the age of 40 should have a curettement for diagnosis. Even where the diagnosis of fibroid of the uterus is positive there must be a decision made as to whether it is the type of fibroid which is suitable for roentgen treatment. Kroenig and Gauss exclude from roentgen treatment (1) all cases of uterine fibroid under twenty-five years (2) gangrenous or suppurating fibroid, (3) combinations of fibroids and carcinoma of the endometrium, (4) fibroids which enlarge in spite of roentgen treatment, and (5) fibroids causing acute incarceration of the bladder. This sounds as though very few cases of fibroid were suitable for roentgen treatment but these same authorities treat eighty-five per cent of all fibroids by this method and claim relief from hemorrhage in one hundred per cent of those chosen for treatment.

Operative treatment of fibroids of the uterus has taught us that there are many surprises coming under this diagnosis, so that we can not be too careful in our decision. Cysts of the ovary or broad ligament will not yield to roentgen treatment and will thus cast discredit upon this method of therapy and result in disappointment to both patient and physician. Those types of fibroid which are especially well adapted for this treatment are the subserous and intramural. The risk of anesthesia and operation can thus be avoided and the patient can go about her regular duties suffering no inconvenience during the course of treatment. The author

would add another class of cases to those best suited for X-ray therapy, viz: cases where there are operative risks from defective heart, arteries or kidneys. Because of the nature of the treatment, a considerable time is required to accomplish the desired results so that any case which falls in the class requiring emergency treatment must be excluded from roentgen therapy in spite of the general condition of the patient. In those cases of incarceration of the bladder or gangrenous degeneration of the fibroid this type of treatment is wholly unfit.

The borderline between fibroid and malignancy is very narrow so that we must be exceedingly careful not to take undue chances. Fibro-myomata are prone to become sarcomata thus where the fibroid does not yield to treatment surgery should be recommended.

Carcinomata are surgical in the early stages or whenever operable no matter what the duration. At the Massachusetts General Hospital where an effort is made not only to do the most complete operation of all cases but where a campaign of education is carried on through social service in order to teach the necessity of early attention in all cases of uterine hemorrhage fifty per cent of all who come are hopeless and are refused operation. In the cases chosen for operation the operative mortality is fifteen to thirty per cent while many die of recurrence. With such a ghastly picture as this before us we should be aroused to use all means which are known to reduce the mortality rate from uterine cancer. We take it that the beneficial effects of the roentgen ray and radium in the treatment of malignancy is well established. We do feel, however, that the surgeons are not using this adjunct to their armamentarium in as wide a range of cases as they should. Statistics could be cited to show that where all cases of uterine carcinoma which are operated and treated afterward by proper roentgenization, the percentage of recurrence has been materially reduced. Knowing the susceptibility of lymphatic tissue to radiant energy one can see how the metastases in the lymphatics are held in check. Of course recurrences happen frequently in the scar in the vaginal vault so that we must consider what beneficial effect, if any, we can have upon these. This much is definitely proven without fear of contradiction, that even in these cases which are surgically hopeless, the bleeding can be stop-

ped after one to three treatments given on successive days. This bleeding can be stopped by proper treatment so that it will not recur even though the patient dies of the malignant growth. Patients who are bedfast and cachectic because of the bleeding and toxemia can have relief from pain and can be made to gain in weight, to lose their cachexia, to get up out of bed and to live from six months to one year longer than would be possible without roentgen treatment.

It is our opinion that all inoperable cases of uterine carcinoma, whether previously operated or not should have the advantage of proper roentgen treatment. The hemorrhage can be stopped in these and marked improvement will take place so that the time required is well worth while. The technic used in fighting such a battle against death as these cases entail must necessarily be of the best and carried out to the letter with the boldness of Hercules. I do not mean that we should burn the skin of the patient, thus adding more suffering to that which is already well nigh unbearable but that we should use the proper quality of X-rays in such massive doses as are necessary to get the desired results in a given case. The history of the following case will illustrate nicely the technic and results we can expect in the so-called hopeless cases of carcinoma.

Mrs. F. H. 39 years of age presented herself for examination giving the following history. She had borne three children, the youngest being seventeen. About four months ago she noticed a lump the size of an English walnut in the right breast. There was some pain. A little later a lump appeared in the left breast. At this time she consulted a physician who told her she had cancer of the breast and referred her for surgical treatment. The surgeon discovered not only a carcinoma in each breast but carcinoma of the liver and of the uterus. She was pronounced inoperable and in a very short time became bedfast, being unable to eat or sleep because of the pain. At this time, eighteen months ago, she was referred for X-ray treatment. During the past eighteen months she has had a series of treatments each month, the radiations covering the entire torso front and back. She is now able to do her own housework, sleeps all night and eats anything she likes. The breasts are soft, the liver is barely palpable, the uterus is still large and boggy but is not bleeding. If she does not live another day the treatment has been well worth while.

To summarize, we feel that we are justified in recommending roentgen therapy for uterine hemorrhage in

(1) Young women who have no demonstrable pathology.

(2) Women near the climacteric without demonstrable pathology.

(3) Uterine fibroid subserous or intramural.

(4) Post-operative uterine carcinomata.

(5) Recurrent uterine carcinomata which is inoperable.

(6) All inoperable uterine carcinomata.

Discussion.

D. T. Quigley, Omaha.—In the proposition of uterine hemorrhage, the thing that interests us in this connection can be divided into three phases, the hemorrhage which comes from cancer; the hemorrhage which comes from fibroid; and the so-called essential hemorrhage in which the pathology is not plain but is probably from some disease of the blood-vessels lining the uterus. I wish to say a few words regarding the use of radium in these three classes of hemorrhage. We find that practically all of them can be controlled by radium used inside the uterus. In the case of hemorrhage from cancer those can be controlled in the same way, very surely, by introducing the radium the same way, inside the uterus. In the fibroids the radium can be used externally and internally, the cross fire completely destroying the tumor in a very short time without any bad results. The essential hemorrhage can also be quickly and surely controlled with radium. The point I should like particularly to call your attention to, the point I think emphasis should be placed upon in this connection, is that none of these conditions should be handled or treated by any non-surgical method unless the man who treats these things is absolutely sure of the things he is treating. I think all the grief that comes to patients in this connection is in not knowing whether we are dealing with cancer or fibroid or what the condition may be. The correct thing in this connection is to make a sure diagnosis in all cases where we find hemorrhage. Let us use a curette, I have done this very frequently without even a local anaesthetic. In most cases we can get the curette up inside the uterus and find out what we are dealing with. When we consider the value of these methods which have been discussed, I believe the most important point brought out is that we should make the diagnosis before we attempt any treatment. The other point is that radium has a decided advantage over X-rays in dealing with those things. It is much quicker and more sure in action, is harmless, in fibroid destroys the tumor completely, and we can insert the radium into the uterus and save the ovary; at least, we can save the ovary from the degree of destruction which might occur with the X-ray.

Palmer Findley, closing: It is certainly very refreshing to find an advocate of radium, another of the X-rays and a gynecologist coming in such perfect accord in the discussion of so vital a question as the management of uterine hemorrhage.

Dr. Tyler has presented statistics from the clinic of Kroenig and Gauss of Freiberg. Personally I would have chosen a more conservative clinic. These

men are regarded as enthusiasts and it is fair to say that their skill and equipment are such as to afford them better results than most men can hope to attain. In justification of the charge that they are enthusiasts I have only to refer to their advocacy of Twilight Sleep and the extravagant claims they make for it. As with Twilight Sleep so with the treatment of fibroids, their results have been astonishing if not incredible.

Were I to summarize the type of fibroids which demand surgical treatment and the exclusion of the X-rays, save in the selected cases where from disability such as incompetent heart, it would be hazardous to attempt surgery, I would include all fibroids of large size causing pressure, all degenerated fibroids and particularly the malignant and infected ones, all fibroids associated with infected adnexae and pregnancy, and finally all submucous fibroids. This would not leave a very considerable number for the radiologist, and yet there is an occasional case which the radiologist, and the radiologist alone, should treat. With few exceptions these fibroids are found in patients who make poor surgical risks.

I have had no personal experience with the application of the rays to the hemorrhages of puberty. This is so because I have feared the over-doing of the treatments. Doubtless the rays will check the hemorrhages but inasmuch as they operate by producing follicular atrophy of the ovaries how is one to safely gauge the dosage and be assured that the functions of the ovaries will not be wholly eliminated?

Finally let it be again said that in the climacteric hemorrhages, no radium or X-rays should be employed without first excluding the possibility of cancer by doing an exploratory curettage and examining the scrapings.

COUNTY SOCIETY NOTES.

The Madison County Medical Association met in Newman Grove, November 6th. Dr. C. A. Meyer who was home on a short furlough from Fort Riley gave some interesting narratives of camp life. The following doctors were present: A. M. Sonneland, L. L. Nelson, P. H. Salter, E. L. Brush, C. J. Verges, W. M. Philips, A. N. Howley and C. B. Mullong of Norfolk; C. C. Barr and M. L. Biggs, of Tilden; F. A. Long, Madison; G. W. Sullivan, St. Edward and F. L. Frink, Frank Jensen and C. A. Meyer of Newman Grove.

The Custer County Medical Society officers for 1918 are:

President, F. A. McGrew, Comstock.

Vice President, G. E. Pennington, Broken Bow.

Secretary-Treasurer, C. L. Mullins, Broken Bow.

Delegate to our 1918 State Association House of Delegates, C. I. Sellon, Broken Bow.

A meeting of the Nebraska-Iowa Pediatric Society was held in Omaha, November 20th. Dr. A. E. Guenther presented a paper on "The Physiology of Ductless Glands."

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The index to Vols. I and II of the Journal is published with this number. Both volumes should be bound together in that the paging is conservative.

Members are requested to note the splendid list of Nebraska physicians who are doing their bit in the present crisis. With one accord we wish them God speed confident that all their talents will be used in allaying suffering and that their active participation will mean the saving of hundreds of lives.

One Way to Help.

The war is calling an increasing number of our Association members into military service. I desire to bring to the attention of the members of our State Association the action taken by our (Custer) county society. At our recent meeting we passed a resolution directing the secretary-treasurer to pay out of the society funds the dues of those members absent and in the government service. Our county society felt that it was the patriotic and practical thing to do and the resolution to do this carried unanimously. Twenty-five per cent of our members have enlisted in the medical service and more are to go. It seems to me that county societies all over our state might well afford to do this, thus keeping the absent ones in good standing and

furnishing them with our State Association Journal which will be immensely appreciated by those out of the country and in a foreign land where the Journals are printed in another language. It is a small burden compared with the one's the absent members are taking upon themselves so willingly.

C. L. Mullins, M. D.,
Pres. Neb. State Med. Assn.

A. M. A. Propaganda.

The American Medical Association has spent much time and money investigating medical quacks and medical nostrums. From week to week the results of these investigations are published in the Journal of the American Medical Association under the department "Propaganda for Reform." Recently two brochures have been published by the Association for distribution to the profession and those of the laity who are interested. These booklets are issued for purely educational purposes and deserve a wide reading. Every physician should have them on his office reading table. One of these brochures is entitled "Miscellaneous Nos-trums" and gives the facts about Duffy's Malt Whiskey, Baughn's Pellagra Remedy, Absorbine, Bell-Ans, Benetol, Caldwell's Sy-rup of Pepsin and many others.

The second brochure is entitled "Medical Institutes" and gives the facts about the United Doctors and others. Either of these may be had from the office of the American Medical Association, 535 North Dearborn St., Chicago.

The 1918 Program.

To the members of the Nebraska State Medical Association, who desire a place on our 1918 official program:

Your request, with title of your paper and a brief abstract of it, should be in the possession of your program committee on or before January 1, 1918. This committee will meet January 3, 1918, to canvass the material offered, and formulate a preliminary scientific program. In compliance with instructions Chapter 8, Section 2, of our Constitution and By-Laws, we shall endeavor to have the character and scope of the Scientific Proceedings of the Association, embody the most practical demands made by the majority in our membership.

Joseph M. Aikin, 468 Brandeis Bldg., Omaha, Chairman.

Surgical Section.

C. A. Roeder, 834 Brandeis Theatre Bldg., Omaha, Chairman.

J. S. Welch, 1st Nat'l. Bank Bldg., Lincoln, Secretary.

Medical Section.

Fred W. Buckley, Beatrice, Chairman.

B. W. Christie, 1st Nat'l. Bank. Bldg., Omaha, Secretary.

A Base Hospital for Nebraska.

Opportunity for Nebraska To Do Effective Medical Work in Red Cross Base Hospital.

The American Red Cross has recently asked the Douglas County and the State Red Cross Societies to cooperate with the University of Nebraska in organizing at once a base hospital unit for service abroad. The Omaha Ambulance Company Committee was called together as a committee on organization. Dr. A. F. Jonas was made chairman and Dr. C. A. Hull secretary of the committee. To the membership of this committee there have been added thirty physicians of the state with a view of widening the interest in the organization.

The base hospital unit will consist of approximately two hundred thirty persons including physicians, nurses, artisans, ward orderlies, laboratory workers, etc. It is expected that the University of Nebraska College of Medicine will stand sponsor for the personnel of the unit and that the organization will go abroad under the direct auspices of the University and the Nebraska Red Cross Society.

Hospital units which have been sent abroad by the Red Cross have been equipped by voluntary subscription. A complete equipment would cost \$150,000. A reasonable working equipment may be secured for from \$50,000 to \$75,000. It is anticipated that Nebraska will not be willing to ask the government to provide the entire equipment for the unit, but that at least \$50,000 shall be raised by subscription.

The burden of the organization of the unit will fall upon Dr. A. C. Stokes who has been named director and all applications relative to the personnel of the unit should be sent to him.

What the organization of this unit means

for Nebraska can not be over-stated. A definite working group of Nebraska physicians, artisans and nurses will become an integral part of the life conserving forces of the world. The opportunity is Nebraska's and the realization lies within our grasp.

Will not every Nebraska physician constitute himself a committee chairman for his locality that interest and support may be forthcoming for this most important endeavor.

How Do We Live?

"If tomorrow we die then today we must live." Inexorable fate has decreed that we must die, but if, while we are living we maintain to the utmost the spirit and zest of youth we exercise unusual wisdom. There have been peoples for whom a healthy mind could only live in a healthy body. As a nation we have not yet risen to this point of view. Although we no longer regard the body as an object of contempt, an attitude so prevalent during the middle ages, and are now more or less ready to admit, or even praise, the spiritual benefits derivable from robust health, yet our convictions have not been expressed in universal practise. To one who for years has been in touch with medical schools it is a most curious reflection that in these institutions whose prime object is considerations of health and disease, so little attention is paid to making any effective provisions for maintaining the student's health. Gymnasia and tennis courts are frequently provided but the course of studies and the demands of the instructors, if carried out, are so exorbitant that no leisure time would be available. The student's health is left to his own devices and he is rarely impressed with the eternal vigilance which is the price paid for health as well as for liberty. What is true of medical students in this respect holds for mankind in general. Individual hygiene is greatly neglected, and, doubtlessly largely as a consequence, the death rates from chronic or degenerative diseases are increasing rapidly. While the death rate in early life (when infectious diseases do most of the killing) has been decreasing, the death rate in later life (when chronic diseases do most of the killing) is increasing.

The division of labor which civilization and modern economic conditions impose has destroyed the normal balance of mental and

physical work, recreation and rest. Many common unhygienic practices are attempts to remedy the evils of this lack of balance. It has been said that we wake ourselves up with caffeine, move our bowels with a cathartic, insure an appetite with a cocktail and seek rest from the day's fatigue in nicotine and put ourselves to sleep with an opiate.

But no matter how thoroughly an individual attempts to care for his health he will find it almost impossible to avoid infections. A man may do his best to keep his windows open, to breathe deeply and to eat hygienically, to hold his activities within the limits of over-fatigue; but if the city's water supply is contaminated or if his next door neighbor visits him and leaves an infection behind, mere personal defenses will hardly be adequate. There are many dangers in the maintenance of health which the individual cannot control and against which he must be guarded by enlightened and progressive legislation. This is illustrated by one of the by-products of the war, resulting from the determination of the conditions under which munition workers in England, while maintaining their usual health may yield a maximum output. A report by Dr. H. M. Vernon as the result of an elaborate investigation points strikingly to the inhibitory effects of fatigue on output. The conclusions merit the immediate consideration of all concerned in industrial organization, and, doubtless in time will be impressed upon teachers and instructors of medical students. The observations extending over a period of thirteen and one-half months on the output of workers employed in making fuses showed that a reduction of working hours was associated with an increase of production, both relative and absolute. A group of 80 to 100 women when actually working 66 hours a week and nominally 74.8 hours, their relative hourly production was 100 and their relative gross production 100. When actually working 54.8 hours and nominally working 58.5 to 66 hours, their hourly production was 134 and their gross production, 111. Such results are eloquent as to the needs for national organization on a scope hitherto undreamed of. That certain progressive countries are well on the way is shown by the program adopted by the Norwegian government pertaining to applied race hygiene. As published in a recent number of *Science* by David Starr Jordan the program is as follows:

A. Negative Race Hygiene.

Segregation—Optional for feeble minded, epileptics and other individuals physically or mentally crippled; obligatory for drunkards, habitual criminals and professional beggars and all who refuse to work.

Sterilization—Opposed to compulsory sterilization but for certain types of crime there is earnest need for methods of treatment more effective than those now in use.

B. Positive Race Hygiene.

Biological Enlightenment.—The study of race biology in school and university. The development of an institute for genealogical research. A state laboratory of race hygiene.

Decentralization—Colonization from congested districts.

A regressive tax and progressive wage system in certain cases. Maternity insurance and other protective measures for the welfare of the infant.

C. Prophylactic Race Hygiene.

Abatement of racial poisons, lead, narcotics, etc.

Progressive taxation on alcoholic liquors.

Treatment as a state function of all maladies injurious to the race.

Health declaration as a requisite to marriage.

Trade Commission Acts on Salvarsan Patent.

The Federal Trade Commission has entered orders for licenses to three firms to manufacture and sell the product heretofore known under the trade names of "Salvarsan," "606," "Arsenobenzol," "Arsaminol," patent rights of which have been held up by German subjects. The orders for licenses are subject to acceptance and agreement by the licensees to the stipulation made by the commission. Upon such acceptance and agreement, licenses Nos. 1, 2 and 3, will be formally granted by Secretary L. L. Bracken, acting for the commission.

Hereafter, this important drug will be manufactured and sold under the name of "Arsphenamine."

The trade commission's action was taken under Section 10 of the Trading With the Enemy Act under direction of Commissioner Fort, upon recommendation of C. H. McDonald, Edward S. Rogers, and Francis Phelps, in charge of granting such licenses. The Public Health Service has prepared rules and standards for the manufacture and testing of "Arsphenamine" and will supervise its manufacture, authority having been conferred on the Public Health Service by the Secretary of the Treasury, and the observance of the rules and standards become a condition of the license.

The three firms which will be hereby per-

mitted to manufacture and sell "Arsphenamine" are Dermatological Research Laboratories, of Philadelphia; Takamine Laboratory, Inc., of New York, and Farbwerke Hoechst Company (Herman A. Metz Laboratory), of New York. The original patent for manufacture of what has heretofore been known as "Salvarsan," etc., was issued to Paul Ehrlich and Alfred Bertheim, German subjects and assigned to Farbwerke Vormal's Meister, Lucius and Bruning of Hoechst on the Main, Germany.

The supply of the drug now licensed to be made in America, up to 1915, was almost exclusively obtained by importation from Germany. From the outbreak of the war importation became more difficult.

Before the war began, the patented drug was sold at \$4.00 per dose which is approximately \$3,500 per pound, and speculatively it has brought as high as \$35.00 per dose. While the price of the product is not fixed at this time by the commission, the right to fix prices is retained, and a price of \$1.00 per dose to the Army and Navy, \$1.25 per dose for hospitals, and \$1.50 per dose for physicians, are the prices at which some, at least, of the licensees have stated that they intend to offer the licensed drug.

The enormous shortage of supply on this important product will immediately be relieved, and the article placed in the hands of the government, the hospitals and the medical profession at a price lower than ever before.

Smallpox Quarantine.

Lyons, Neb., Oct. 1, 1917.

Editor Nebraska State Medical Journal:

It would probably be accounted presumptuous for an ordinary individual to make suggestions to the State Board of Health. In view of the smallpox situation in the state and the slipshod methods in relation to quarantine the question arises, would it not be better to abolish or materially modify the quarantine with relation to smallpox? We know that modern smallpox is a joke as regards mortality. Diseases like typhoid, measles, pneumonia, etc., all infectious or contagious, or both, with appalling death rates and sequelae and for which no permanent artificial immunity is known are not quarantined. Observation throughout the state will show anyone that the smallpox quarantine is

a "howling farce." One of its chief effects is to cause local fights between doctors as to whether it is smallpox or chickenpox. After having been annoyed for "lo these many years" as local health officer by this foolishness the question arose in the mind of the writer—could not some changes be made to better conditions? This line of thought prompted an inquiry of the Minnesota State Board (one of the very efficient boards) which has made some radical and beneficent changes in recent years. Herewith is a part of the answer received from the executive officer, Dr. Bracken, with reasons for the changes which to my mind are excellent:

"You will see from these that we have not given up all restraint in dealing with smallpox. Our point is that smallpox is a disease that can be prevented by vaccination. We do not propose, therefore, to put a community to a great expense in an attempt to control smallpox by rigid quarantine. We rather take the position that if an adult wants smallpox, he or she should have the privilege of having it.

"You will note from the regulations that we placard a house where smallpox exists, and that smallpox patients are forbidden to leave the house so long as the placard is on the place. Further, that the unvaccinated members of the household must not leave the house. There is no restraint upon the movements of those living in the house who are protected by vaccination or a previous attack of smallpox. We even allow children who are protected by vaccination to attend school from a house where smallpox exists. We do not believe that smallpox is spread to any great extent (although we admit that it may be carried in certain instances) by those who do not have the disease themselves.

"If people object to a vaccinated child attending school from a house where smallpox exists, we ask at once, 'Is your child protected by vaccination?' If the answer is no, we ask them why we should penalize a vaccinated child for the benefit of an unvaccinated child. In other words, not having a law by which we can compel vaccination of school children, we take the attitude that we will put a premium on vaccination and penalize the unvaccinated.

"When these regulations were first promulgated, there was a great howl, but many of the doctors who criticised us at first now feel that we did the right thing, and they advise us that there has been a great deal more vaccination since these regulations went into effect than there was. It makes the thinking people stop and think."

In view of the excellent reasoning and reported results the writer would respectfully bring the matter to the attention of our State Board and urge that it be given consideration with the view of abating a nuisance and encouraging the custom of vaccination, the only remedy.

M. L. Hildreth, M. D.



Necrology.

Dr. M. Stewart of Tecumseh, Neb., aged fifty-nine years, died November 13, 1917, after an illness of several months. The resolution passed by the Johnson County Medical Society follows:

Resolution.

Tecumseh, Neb., Nov. 15, 1917.

Whereas, The grim hand of death has laid its icy fingers on the heart of one of the most esteemed members of our association and it has forever ceased to beat, causing an ineffable loss and a void that can never be filled, therefore be it Resolved,

First: That in the death of Dr. M. Stewart, the medical profession of the State, County and City have suffered a severe and lasting loss.

Second: That the civil life of our community has been deprived of a man whose virtues were many and varied; who was always a stalwart defender of right doing, right living and right thinking.

Third: That we recognize that while the profession and the community have been made to feel most severely and to feel most mightily the death of Doctor Stewart, but that our loss and our sorrow is but slight compared with the midnight darkness that in this hour surrounds the grief stricken family of the deceased, and to them, one and all, the society extends its profound and heartfelt sympathy. We

can only commend them to the Great Physician who can heal all diseases and pour the balm of heavenly consolation into every wounded and sorrowing heart.

Fourth: That a copy of these resolutions be spread upon the record of this society, a copy given to the press of the city for publication, and a copy given to the bereaved family of our departed member.

Truman E. Fairall, M. D., Sec'y.

Chas. Ziegler, M. D.,

Dr. Cramb, M. D.

Committee.

NOTES.

In a brief eulogy of Mendel "father of eugenics," The Modern Hospital points out that whereas the population of the United States increased 11 per cent between 1904 and 1910 the number of persons in insane asylums increased 25 per cent. Mendel's doctrines form the scientific basis of the science of Eugenics.

Reports from the Committee on Nursing of the General Medical Board of the Council of National Defense show that the nurses' training schools throughout the country have increased their enrollments this year 2,600. Normally there are about 13,000 students entering the training schools. The total enrollment for this year is approximately 15,600.

Members Gerdes and Mayfield of the state board of control were in Kearney recently and inspected the new heating plant which has been installed in the State Tuberculosis Hospital.

County Attorney Sam Zimmerman of Loup county has been advised by Attorney General Reed to prosecute C. F. Springer of Pawnee City who has been soliciting in Loup county for Dr. C. M. Coe of Kansas City, Missouri. According to the law a man who goes out and takes symptoms of patients, sends a report to a physician in Kansas City, who forwards the medicine, the symptom-taker later making trips to patients to see how they are getting along, and who collects fees in cash or in notes is practicing medicine, and having no license to so practice is practicing in violation of the Nebraska law.

MILITARY NOTES.

Dr. Henry L. Aikin, Omaha, has been promoted to the rank of major in the medical reserve corps of the army. He is stationed at Camp Grant, Rock Island, Illinois.

Dr. O. T. Hansen of Wausa has received his commission as captain in the medical reserve corps.

Captain F. M. Barker of Ft. Riley visited in North Loup for a few days.

Dr. J. C. Waddell has accepted a captain's commission in a Red Cross base hospital unit. He expects to be called for training about the first of the year.

Dr. W. R. Neumarker of Columbus has been promoted to the rank of major. He is located at Camp Dodge, Iowa.

Dr. W. J. Adamson of Lincoln has taken the practice of Dr. Fred E. Dargatz at Galead. Dr. Dargatz has entered the Medical Officers Reserve Corps as First Lieutenant.

Your Association
wishes every Member
A
Happy
and Prosperous
New Year



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